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PRINCIPAL INVESTIGATOR: Dr. Charles Benight

CONTRACTING ORGANIZATION: University of Colorado, Colorado Springs Campus
Colorado Springs, CO 80918-3733

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Valerie Anderson, Charles Benight, Judith Bock, Roman Cieslak, Kotaro Shoji Frederick Gibson, Lisa Decker	
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E-Mail: benight@uccs.edu	

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14. ABSTRACT

SupportNet aims to assess the level of secondary trauma and job burnout among military behavioral health providers and to provide a pilot support system for providers working at with military trauma survivors. In the second year of the project, we completed the initial survey and data analysis of behavioral health providers and have designed the internet and in-person portions of the intervention.

Secondary trauma is a serious issue and occurs when caretakers are continually exposed to extensive traumatic material on an on-going basis. Symptoms of secondary trauma are similar to Posttraumatic Stress Disorder and can influence ability to engage in the therapeutic process with clients, irritability, and emotional numbing. Secondary traumatization may also lead to severe burnout and turnover.

15. SUBJECT TERMS
Secondary traumatic stress, compassion fatigue, job stress, burnout, behavioral health providers, combat trauma.

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Table of Contents

BODY:

The following are the three objectives for the SupportNet project. These are being provided here in order to reference the objective(s) supported by the accomplishment for each of the Research and Project Management Accomplishments listed.

Objective 1: We will conduct an initial needs assessment to determine the level of secondary trauma and burnout in military mental health providers from U.S. Army Posts around the country in order to establish prevalence rates for secondary trauma, burnout, and compassion fatigue in military mental health providers.

Objective 2: We will evaluate the utility of social cognitive theory as a framework for understanding the stress process for military mental health providers by using a quantitative evaluation of coping self-efficacy to predict negative outcomes for military mental health providers.

Objective 3: We will develop and evaluate a theoretically based support system called SupportNet to empower behavioral health providers in developing critical self-assessment skills, self-regulatory abilities, and support seeking capacities and will test the system's effectiveness by completing a randomized controlled trial and a program and process evaluation.

Research accomplishments

a) Time 2 data collection was completed in November, 2012 (Objective 1 & 2).

b) Time 2 data cleaning and preliminary analysis were completed in December, 2012 (Objectives 1 & 2).

c) We have completed all of the profiles, forms and procedures for the RCT portion of the project. The IRB Application package has been submitted in May 2013 to TATRC for feedback, and will be submitted to the UCCS IRB in July, 2013 (Objectives 3).

d) We have authored a research paper on the development of the Secondary Trauma Self-Efficacy Scale, which was accepted for publication in Psychological Assessment (Impact Factor: 2.993) and published online in May, 2013. The paper presents a new method that had to be created to assess a key resilience component important in coping with the effects of indirect exposure to trauma. (Objective 2).

    a. Cieslak, R., Shoji, K., Luszczynska, A., Taylor, S., Rogala, A., & Benight, C. C. (2013, May 6). Secondary Trauma Self-Efficacy: Concept and Its Measurement. *Psychological Assessment*. Advance online publication. doi: 10.1037/a0032687 (Appendix I)

e) After receiving reviews, we completed a revision of our paper on the prevalence of secondary trauma among behavioral health providers working with military personnel. The paper was accepted for publication January, 2013 in Journal of Nervous and Mental Disease (Impact Factor: 1.842) and is scheduled for publication in 2013. The prevalence of secondary traumatic stress among 224 behavioral health practitioners working with the military-related trauma was 19.2%. Personal history of trauma, complaints about having too many patients, and more negative appraisals of the impact caused by an indirect exposure to trauma were associated with higher frequency of secondary traumatic stress symptoms. A meta-analysis of existing studies showed that the severity of intrusion, avoidance, and arousal symptoms of secondary traumatic stress was similar across various groups of professionals indirectly exposed to trauma (e.g., mental health providers, rescue workers, social workers). (Objective 1 & 2).

    a. Cieslak, R., Anderson, V., Bock, J., Moore, B. A., Peterson, A. L. & Benight, C. C. (2013). Secondary traumatic stress among mental health providers working with the

4

military: Prevalence and its work- and exposure-related correlates. Accepted for publication. (Appendix II)

f) We completed a meta-analytic paper on the relationship between secondary traumatic stress and job burnout, which in May, 2013 after revising it and responding to reviewers' comments was accepted for a special issue in Psychological Services (Impact Factor: 1.075). A systematic review of literature yielded 41 original studies, analyzing data from a total of 8,256 workers. Meta-analysis indicated that association between job burnout and secondary traumatic stress was strong (weighted r = .69). (Objective 1).

    a. Cieslak, R., Shoji, K., Douglas, A., Melville, E., Luszczynska, A., & Benight, C. C. (2013). A meta-analysis of the relationship between job burnout and secondary traumatic stress among workers with indirect exposure to trauma. Accepted for Publication. (Appendix III)

g) In January, 2013 we submitted a manuscript on the mediating role of social support and secondary traumatic self-efficacy in the relationship between secondary traumatic stress and secondary traumatic growth to Journal of Clinical Psychology (Appendix IV). Based on their feedback, we are revising the manuscript and will resubmit it in July, 2013. (Objective 2).

    a. Shoji, K. Bock, J., Cieslak, R., Zukowska, K, & Benight, C. C. (under revision). Secondary Traumatic Growth among Healthcare Workers: Role of Social Support and Self-Efficacy. Manuscript submitted for publication (Appendix IV).

h) We reviewed the literature regarding available military programs for compassion fatigue and resiliency, non-military web-based interventions, and evaluation models for web-based intervention designs. Based on that work, we submitted a manuscript for a special issue in *Professional Psychology: Research and Practice* focusing on the challenges of secondary traumatic stress and burnout in military healthcare providers including a suggested potential online support system. The manuscript was submitted in May, 2013 and is currently under review (Objective 3).

    a. Shoji, K., Gibson, F., Bock, J., Teel, M., Anderson, V., & Benight, C. (under review) Hidden Costs of Secondary Traumatic Stress and Burnout on Military Personnel. Manuscript submitted for publication (Appendix V).

i) The book chapter on job burnout has been published in a book dedicated to military psychologists. The book will be available in July, 2013 (Objective 1).

    a. Benight, C.C & Cieslak, R. (2013). Professional Burnout. In B. A. Moore & J. E. Barnett (Eds.). *Military Psychologists' Desk Reference*. New York: Oxford University Press. (Appendix VI) http://global.oup.com/academic/product/military-psychologists-desk-reference-9780199928262?q=Military Psychologists' Desk Reference&lang=en&cc=

j) Two poster presentations were accepted for the APA Annual Conference in August 2013. (Objective 1 & 2).

    a. Bock, J., Shoji, K., Cieslak, R., & Benight, C., Effects of Social Support and Self-efficacy on Secondary Traumatic Growth.

    b. Shoji, K., Luther, E., Cieslak, R., Smoktunowicz, E., & Benight, C. C., Indirect Effect of Job Burnout on Job Engagement.

k) We are working on another publication – a meta-analysis on the relationship between job burnout and self-efficacy. The systematic search for the literature resulted in finding 53 original studies meeting inclusion and evaluation criteria. Preliminary results showed that there is a moderate association between job burnout and self-efficacy Moderating analysis is underway (Objectives 1 & 2).

l) The next research publication which is underway refers to the relationship between job burnout and work engagement with social support and self-efficacy as the hypothetical mediators. We aimed to investigate if these two resources (i.e. social support and self-efficacy) might be used to increase work engagement for those who suffer from job burnout. Statistical analyses on longitudinal data from Time and Time 2 assessments are underway (Objectives 1 & 2).

m) Our external program evaluator conducted an internal qualitative process evaluation of the SupportNet team. Further, after having already reviewed the literature on process and outcome evaluation relevant to interventions for general and military mental health caregivers, the evaluation team produced a process and outcome evaluation plan for the RCT of the SupportNet intervention. (Objective 3) (Appendix X).

Intervention design and development accomplishments

a) We have developed an intervention model that identifies key functional areas for improving self-regulatory abilities (using mindfulness, stress reduction, and self-efficacy skills enhancement) and social support (both personal and professional). (Objective 3)

b) Evaluated technology platforms for use in the Internet portion of the intervention. (Objective 3).

c) Completed the functional requirements and system architecture specification for BlueSun, Inc., the originally proposed subcontractor. As reported earlier, the direction for implementation of the web-based portion of the intervention was changed and an internal technical team was hired. (Objective 3)

d) We have facilitated six, on-site Focus Group meetings at Fort Carson. (Objective 3) (Appendix VII)

e) We have reviewed the preliminary site design with the Fort Carson Focus Group and incorporated feedback. (Objective 3)

f) We have completed the design for the registration, user login, user profile, self-assessment, goal setting and resource room portions of the intervention. (Objective 3) (See Appendix VIII for screen shots)

g) We have defined the content for the Self-Assessment, Resource Room and About Us portions of the site. (Objective 3)

h) We have completed coding for the registration, user login, user profile, self-assessment, goal setting and resource room portions of the intervention. These modules are ready for testing and Focus Group feedback. (Objective 3) (See Appendix VIII for screen shots)

i) We have researched best practices and risk management in providing coaching services. (Objective 3)

j) We have completed the format and objectives for the coaching process that accompanies the web portion of the intervention. A draft Coaching Manual is developed and under internal review. (Objective 3) (Appendix IX)

Project management accomplishments

a) Hired and trained 4 new staff members (Objectives 1, 2 & 3). Frederick Gibson, Ph.D. was hired in January 2013 as the replacement Research Director for Roman Cieslak, Ph.D., who then changed his role on the project from Research Director to our part-time Senior Statistical and Content Expert Consultant.

b) Albert Glock and Carolyn Yeager were hired in December 2012 and January 2013, respectively, as Senior Application Software Engineers.

c) In February, 2013, Lisa Decker was hired for the position of Clinical Therapist.

d) We attended the International Society for Traumatic Stress Studies (ISTSS) where we presented a poster demonstrating the role of regressive coping as a predictor of job burnout in military mental health providers. We attended the American Psychological Association (APA) Annual Conference to develop stronger relationships with military behavioral health providers. We attended the International Society for Research on Internet Interventions (ISRII) Conference to assess the current state-of-the-art in doing research with internet interventions to inform the SupportNet RCT procedures.

e) We submitted a revised budget to reflect changes in strategy for developing the technology and for external evaluation.

Recommended Changes and Future Work

To date, the SupportNet research team does not have any recommended changes to the scope of this research. However, there is an area for future work that the team is exploring now with officials from Ft. Carson. The team has met twice with members of the Chaplain Corps (4th Infantry Division and Ft. Carson Garrison Command) to discuss whether the chaplains should be included in the study, as our literature review and informal interviews indicate that the chaplaincy may be at higher risk for secondary trauma and burnout.

KEY RESEARCH ACCOMPLISHMENTS:

a) Time 2 data collection was completed in December, 2012; data cleaning and preliminary analysis have been completed.

b) We have completed all of the profiles, forms and procedures for the RCT portion of the project.

c) Research papers authored:

  a. Secondary Trauma Self-Efficacy: Concept and Its Measurement

  b. Secondary traumatic stress among mental health providers working with the military: Prevalence and its work- and exposure-related correlates

  c. Meta-analysis of the relationship between job burnout and secondary traumatic stress among workers with indirect exposure to trauma

  d. Secondary Traumatic Growth among Healthcare Workers: Role of Social Support and Self-Efficacy

  e. Hidden Costs of Secondary Traumatic Stress and Burnout on Military Personnel

  f. Book chapter on job burnout

REPORTABLE OUTCOMES:

Published and Accepted Papers and Abstracts.

Cieslak, R., Shoji, K., Luszczynska, A., Taylor, S., Rogala, A., & Benight, C. C. (2013, May 6). Secondary Trauma Self-Efficacy: Concept and Its Measurement. *Psychological Assessment*. Advance online publication. doi: 10.1037/a0032687 (Appendix I)

Cieslak, R., Anderson, V., Bock, J., Moore, B. A., & Peterson, A. L. & Benight, C. C (2013). Secondary traumatic stress among mental health providers working with the military: Prevalence and its work- and exposure-related correlates. Accepted for publication. (Appendix II)

Cieslak, R., Shoji, K., Douglas, A., Melville, E., Luszczynska, A., & Benight, C. C. (2013). A meta-analysis of the relationship between job burnout and secondary traumatic stress among workers with indirect exposure to trauma. Accepted for Publication. (Appendix III)

Benight, C.C & Cieslak, R. (2013). Professional Burnout. In B. A. Moore & J. E. Barnett (Eds.). *Military Psychologists' Desk Reference*. New York: Oxford University Press. (Appendix VI) http://global.oup.com/academic/product/military-psychologists-desk-reference-9780199928262?q=Military Psychologists' Desk Reference&lang=en&cc=

Bock, J., Shoji, K., Cieslak, R., & Benight, C. C. (2013). Effects of Social Support and Self-efficacy on Secondary Traumatic Growth. Accepted for presentation at the American Psychological Association Annual Meeting.

Shoji, K., Luther, E., Cieslak, R., Smoktunowicz, E., & Benight, C. C. (2013). Indirect Effect of Job Burnout on Job Engagement. Accepted for presentation at the American Psychological Association Annual Meeting.

Clinton, M., Benight, C. C., Cieslak, R., Bock, J., & Anderson, V. (2012). The Regressive Coping Scale: Evaluating the Risk Factors for Job Burnout. Poster presented at the 28th annual conference of the International Society for Traumatic Stress Studies. Los Angeles, CA.

Funding Applications

A grant proposal was submitted in March 2013: Secondary Traumatic Stress among Deployed Military Healthcare Providers. This proposal was not accepted.

CONCLUSION:

The second year of SupportNet has been very successful. We have made significant strides in meeting all three of the projects primary objectives. We have 3 primary publications and a book chapter accepted that address Objectives 1 and 2. We have submitted another paper for publication that addresses Objective 3. We have presented at several national and international professional meetings on our work. We submitted a request for future funding to extend this work to Clergy who are experiencing secondary trauma and burnout. We are well on the way to submitting at least 2 other papers this year and investigating future grant opportunities. Our intervention development is moving very well. We are in the process of getting IRB approval for the second phase of this project.

APPENDICES:

Appendix I: Manuscript: Secondary Trauma Self-Efficacy: Concept and Its Measurement

Appendix II: Manuscript: Secondary traumatic stress among mental health providers working with the military: Prevalence and its work- and exposure-related correlates

Appendix III: Manuscript: Meta-analysis of the relationship between job burnout and secondary traumatic stress among workers with indirect exposure to trauma

Appendix IV: Manuscript: Secondary Traumatic Growth among Healthcare Workers: Role of
Social Support and Self-Efficacy

Appendix V: Manuscript: Hidden Costs of Secondary Traumatic Stress and Burnout on Military

Personnel

Appendix VI: Manuscript: Book chapter on job burnout

Appendix VII: Focus Group Presentations

Appendix VIII: Screen Shots of Completed Intervention Modules

Appendix IX: Draft Coaching Manual

Appendix X: Process and Outcome Evaluation Plan for SupportNet

Psychological Assessment

Secondary Trauma Self-Efficacy: Concept and Its Measurement

Roman Cieslak, Kotaro Shoji, Aleksandra Luszczynska, Sandra Taylor, Anna Rogala, and Charles C. Benight

Secondary Trauma Self-Efficacy: Concept and Its Measurement

Roman Cieslak
University of Colorado at Colorado Springs and University of
Social Sciences and Humanities, Warsaw

Kotaro Shoji
University of Colorado at Colorado Springs

Aleksandra Luszczynska
University of Colorado at Colorado Springs and University of
Social Sciences and Humanities, Wroclaw

Sandra Taylor
University of Colorado at Colorado Springs

Anna Rogala
University of Social Sciences and Humanities, Warsaw

Charles C. Benight
University of Colorado at Colorado Springs

The Secondary Trauma Self-Efficacy (STSE) Scale was developed and psychometrically evaluated in 2 studies targeting populations indirectly exposed to traumatic events through work with traumatized clients. Study 1 enrolled behavioral health professionals ($n = 247$) providing trauma therapy for military clients in the United States. Study 2 investigated characteristics of the STSE Scale among health care and social workers ($n_{T1} = 306$, $n_{T2} = 193$) providing services for trauma victims and survivors in Poland. Rooted in social cognitive theory, the 7-item STSE Scale is used to evaluate perceived ability to cope with the challenging demands resulting from work with traumatized clients and perceived ability to deal with the secondary traumatic stress symptoms. In both studies, exploratory and confirmatory factor analysis showed unidimensionality of the scale. The results indicated good internal consistency of the STSE Scale and its stability over time. STSE correlated highly or moderately with secondary traumatic stress symptoms. Comparatively, associations between STSE and perceived social support, secondary traumatic growth, and negative beliefs about the world and self were either moderate or low. The STSE factor structure and pattern of correlations with the validity measures were invariant across the 2 studies, which indicated that the STSE Scale may be a culturally unbiased instrument.

Keywords: secondary traumatic stress, self-efficacy, measurement validity, measurement reliability

Secondary exposure to trauma refers to the widespread phenomenon of indirect exposure to different types of traumatic material, such as contacts with people who have experienced traumatic events, exposure to graphic trauma content (e.g., reported by the survivor), exposure to people's cruelty to one another, and observation of and participation in traumatic reenactments (Pearlman & Saakvitne, 1995). Indirect exposure may be an inherent character-

istic of occupations such as mental health, health care, and social work, which involve providing clinical services to traumatized populations (Elwood, Mott, Lohr, & Galovski, 2011). Although indirect (also referred to as *secondary* or *vicarious*) exposure to trauma through work might have a positive effect on service providers' posttraumatic growth (Brockhouse, Msetfi, Cohen, & Joseph, 2011), research suggests that indirect exposure is related to

higher levels of distress (Pearlman & MacIan, 1995), negative cognitions or low levels of self-trust (Pearlman & MacIan, 1995), and secondary traumatic stress (Elwood et al., 2011).

Secondary traumatic stress is one of the most often investigated negative consequences of indirect exposure to trauma. Although there are many definitions of *secondary traumatic stress*, in this article it is defined as reactions resembling posttraumatic stress, such as intrusive re-experiencing of the traumatic material, avoidance of trauma triggers, and emotions and increased arousal, all resulting from indirect exposure to trauma (Bride, Robinson, Yegidis, & Figley, 2004). Prevalence of secondary traumatic stress varies from 15.2% among social workers (Bride, 2007), 16.3% in oncology staff (Quinal, Harford, & Rutledge, 2009), 19% in substance abuse counselors (Bride, Hatcher, & Humble, 2009), 32.8% in emergency nurses (Dominguez-Gomez & Rutledge, 2009), 34% in child protective services workers (Bride, Jones, & MacMaster, 2007), to 39% in juvenile justice education workers (Hatcher, Bride, Oh, King, & Catrett, 2011).

Self-Efficacy as a Protective Factor

In response to the common secondary traumatization exposure and its consequences among several occupational groups, researchers and professionals have advocated for testing protective factors (Elwood et al., 2011; Tyson, 2007). Some individual protective characteristics, such as years of experience as a clinician (Voss Horrell, Holohan, Didion, & Vance, 2011), may be hard to modify. The effectiveness of self-care activities (e.g., leisure time) in reduction or prevention of distress and secondary traumatic stress symptoms is limited (Bober & Regehr, 2006). In contrast, trauma-related cognitions, such as self-efficacy, are modifiable factors that may contribute to posttraumatic adaptation (Ehlers & Clark, 2000).

Self-efficacy is among the cognitions that may be seen as a proximal determinant of health-related outcomes after a traumatic event (Benight & Bandura, 2004). According to social cognitive theory (SCT), self-efficacy mirrors a sense of control over environment and refers to the perceived ability to master challenging demands (such as major stressful events and their aftermath) by means of adaptive actions (Bandura, 1997). Self-efficacy makes a difference in how people feel, think, and act (Bandura, 1997). Recent SCT developments suggest that beliefs about one's own abilities to cope help in overcoming difficulties arising after exposure to a traumatic event (Benight & Bandura, 2004). A systematic review confirmed large significant negative associations between self-efficacy and negative consequences of traumatization, such as posttraumatic stress disorder (PTSD; Luszczynska, Benight, & Cieslak, 2009).

Secondary Trauma Self-Efficacy

Although multiple studies have shown that self-efficacy explains posttraumatic adaptation (cf. Luszczynska et al., 2009) and several measures to assess self-efficacy among trauma survivors have been developed (e.g., Hyre et al., 2008; Lambert, Benight, Harrison, & Cieslak, 2012), we found very few studies investigating self-efficacy or other positive cognitions in the context of secondary exposure to trauma and its consequences. We identified only three studies testing for self-efficacy and health outcomes of secondary trauma exposure.

Among professionals who are at risk for vicarious exposure, self-efficacy is associated with better quality of life (Prati, Pietrantoni, & Cicognani, 2010), less compassion fatigue (Ortlepp & Friedman, 2002) and lower levels of secondary traumatic stress (Bonach & Heckert, 2012). It is important to note that those studies assessed work-related self-efficacy, referring to perceptions of training efficiency and perceptions of personal effectiveness at work (Bonach & Heckert, 2012; Ortlepp & Friedman, 2002), or assessed general perceptions of the capability to face various challenges at work (Prati et al., 2010). This work-related approach to measure self-efficacy may be an optimal choice to investigate associations between aggravated job stress levels among workers and global consequences of stress (e.g., quality of life, general distress). In contrast, exploring the role of self-efficacy beliefs in the context of secondary trauma exposure and its potential consequences requires evaluating beliefs about the capability to cope with thoughts and feelings related to secondary trauma exposure. As SCT suggests, contexts of self-efficacy should match the specificity of the environment (e.g., types of stressors) and the outcomes. Such an approach is also in line with the optimal matching hypothesis (Cutrona, 1990), indicating the need for testing the role of social cognitive mediators that match the type of stressor and stress outcomes. Therefore, *secondary trauma self-efficacy* (STSE) is defined in this article as perceived ability to cope with the challenging demands resulting from work with traumatized clients and perceived ability to deal with the secondary traumatic stress symptoms.

Aim of the Study

A lack of knowledge about the relationships between self-efficacy and outcomes of secondary trauma exposure among clinical service providers may be due to the fact that no existing measure of self-efficacy is available to assess these relationships. To fill this void, we evaluated the psychometric properties of a newly developed measure of secondary trauma self-efficacy. It was hypothesized that the STSE Scale would have a unidimensional structure, similar to other measures of self-efficacy (e.g., Hyre et al., 2008; Schwarzer & Jerusalem, 1995). In evaluating the congruent validity of the STSE Scale, we expected that STSE would be moderately or strongly associated with secondary traumatic stress symptoms. As for the discriminant validity, we hypothesized that there would be low to moderate correlations between STSE and other secondary trauma-related cognitions, such as (a) perceived social support, (b) negative cognitions about self and the world, and (c) secondary traumatic growth.

Theory and research suggest that self-efficacy relates to other cognitions and social resources that predict health-related outcomes (Benight & Bandura, 2004). Self-efficacy may be enhanced by social support, or it may affect social support seeking, thus, indirectly predicting health-related outcomes (cf. enabling and cultivation hypotheses; Schwarzer & Knoll, 2007). Therefore, the association between STSE and perceived social support would be expected.

Further, most prominent theoretical frameworks explaining PTSD symptoms (e.g., emotional processing theory; Foa & Rothbaum, 1998) assume that negative cognitions about self and the world are key cognitive determinants of the outcomes of the exposure to traumatic stress. However, research has indi-

cated that these negative cognitions operate through other trauma-specific cognitions, such as self-efficacy (Cieslak, Benight, & Lehman, 2008). Therefore, secondary trauma self-efficacy might also be correlated with negative cognitions about self and the world resulting from the indirect exposure to trauma.

Social cognitive theory also implies that strong self-efficacy may enable individuals to identify important opportunities to promote individual growth (Bandura, 1997; Benight & Bandura, 2004). Perceiving positive changes resulting from a struggle with traumatic events and their consequences (Calhoun & Tedeschi, 2006) may represent a positive outcome of posttraumatic adaptation. Perceived posttraumatic growth may be influenced by self-efficacy. In particular, functional outcomes such as perceived growth may develop if survivors start to actively deal with posttraumatic adversities (Zoellner & Maercker, 2006). Such changes and individual growth may occur after secondary trauma (Arnold, Calhoun, Tedeschi, & Cann, 2005). Therefore, it was hypothesized that secondary traumatic growth would be associated with STSE.

Study 1

Method

Participants. The study was part of a larger project investigating secondary trauma, work-related demands, and resources among mental health care providers working with returning soldiers in the United States. Inclusion criteria for the present study were (a) working at least 1 year as a clinical psychologist, counselor, or social worker; (b) providing services for a military population; and (c) being indirectly exposed to trauma through interaction with patients. Of 312 individuals who responded to any of the items on the STSE Scale, 247 participants (82 men, 33.2%) were qualified for the present study based on the previously described inclusion criteria.

Table 1 displays demographic information of the sample. On average, participants were 48.59 years old ($SD = 13.02$). The sample consisted of clinical psychologists (47.0%), counselors or psychotherapists (29.6%), and social workers (23.5%). Participants experienced indirect exposure to different types of traumatic

Table 1

Descriptive Statistics for Study 1 and Study 2: Demographics, Means, and Standard Deviations

	Study 1 ($n = 247$)		Study 2, T1 ($n = 306$)		Study 2, T2 ($n = 193$)	
Variable	M (SD)	% (n)	M (SD)	% (n)	M (SD)	% (n)
Demographic characteristics						
Age (years)	48.59 (13.02)		35.41 (8.59)		35.05 (8.10)	
Gender						
Female		66.8 (165)		75.8 (232)		79.3 (153)
Male		33.2 (82)		23.2 (71)		19.2 (37)
Intimate relationship						
Long-term relationship		75.7 (187)		73.9 (226)		77.2 (149)
Not in a relationship		22.3 (55)		25.5 (78)		22.3 (43)
Highest academic degree						
High school		—		20.6 (63)		18.1 (35)
Associate's degree		4.0 (1)		—		—
Bachelor's degree		4.0 (1)		21.2 (65)		19.7 (38)
Master's degree		44.5 (110)		56.5 (173)		60.6 (147)
Doctorate degree		54.7 (135)		1.0 (3)		0.58 (1)
Profession						
Clinical psychologists		47.0 (116)		—		—
Health care providers		—		48.4 (148)		45.6 (88)
Social workers		23.5 (58)		37.6 (115)		40.9 (79)
Counselors		29.6 (73)		—		—
Other		—		12.3 (38)		11.9 (23)
Measures						
Perceived social support						
Total	5.78 (1.04)		5.01 (1.50)		—	
From family	5.63 (1.30)		4.86 (1.71)		—	
From friend	5.70 (1.20)		4.94 (1.57)		—	
From significant other	6.02 (1.27)		5.23 (1.67)		—	
Negative cognitions						
About world	3.08 (1.24)		—		—	
About self	1.50 (0.68)		—		—	
Secondary traumatic growth	2.36 (1.28)		2.88 (1.08)		—	
Secondary trauma self-efficacy	6.15 (0.72)		5.21 (0.93)		5.28 (0.93)	
Secondary traumatic stress						
Total	1.86 (0.61)		2.31 (0.64)		—	
Intrusion	1.77 (0.58)		2.55 (0.74)		—	
Avoidance	1.89 (0.71)		2.14 (0.65)		—	
Arousal	1.92 (0.71)		2.33 (0.81)		—	

Note. Percentages may not add up to 100% due to missing data. T1/T2 = Time 1/Time 2.

events, including, for example, military combat (89.1%), physical assaults (83.6%), motor vehicle accidents (82.6%), and natural disasters (68.0%). Additionally, all participants were also directly exposed to a traumatic event, with the average number of three traumatic events reported per person ($M = 3.26$, $SD = 1.84$).

Measures. Participants completed a set of questionnaires evaluating secondary trauma self-efficacy, secondary exposure to trauma, and measures used for the validity assessment.

Secondary trauma self-efficacy. The items of Secondary Trauma Self-Efficacy (STSE) Scale were developed in three steps. First, three experimenters (licensed psychologists specializing in secondary trauma issues) conducted structured interviews with 30 behavioral health providers exposed to secondary traumatic stress. The interviews aimed at investigating the beliefs about the ability to deal with work-related secondary exposure. Later, the experimenters screened the measures originally designed to assess perceived ability to cope with demands resulting from the exposure to trauma and perceived ability to deal with PTSD symptoms (Cieslak et al., 2008; Hyre et al., 2008; Lambert et al., 2012). They independently selected up to 12 items, reflecting the self-efficacy statements elicited in the interviews. Seven items were selected by all three experimenters and included in the STSE Scale. The respective items were modified to measure self-efficacy cognitions in the context of indirect exposure to trauma through work with traumatized individuals. In the next step, the experimenters independently screened the interview records for recurring self-efficacy statements that were not covered by the seven items selected in the previous step. Two additional self-efficacy statements were identified using the consensus method and were added to the STSE Scale.

The preliminary version of the STSE Scale consisted of nine items beginning with the same stem phrase "How capable am I to . . ." followed by the nine items. Participants were asked to relate these items to their "work with people experiencing extreme or traumatic events." The content of the scale is presented in Figure 1. The responses were given on a 7-point Likert-like scale, ranging from 1 (*very incapable*) to 7 (*very capable*).

Secondary trauma exposure. The Secondary Trauma Exposure Scale was developed for the present study to measure indirect exposure to traumatic events (Cieslak et al., in press). It consists of a list of 10 potentially traumatic events, including natural disasters, motor vehicle accidents, other serious accidents, physical assaults, sexual assaults, other life-threatening crimes, military combat or exposure to a warzone, life-threatening illness or injury, sudden

Secondary Trauma Self-Efficacy Scale

For each situation described below, please rate how capable you are to deal with thoughts or feelings that occur (or may occur) as the result of your work with people experiencing extreme or traumatic events.

Please rate each situation as you CURRENTLY believe.

Very incapable	Incapable	Somewhat incapable	Neither incapable nor capable	Somewhat capable	Capable	Very capable
1	2	3	4	5	6	7

"How capable am I to …"

_____Deal with my emotions (anger, sadness, depression, anxiety) about working with these people.

_____Find some meaning in what had happened to these people.

_____Control recurring distressing thoughts or images about these people.

_____Deal with thoughts that similar things may happen to me.

_____Be supportive to others after my experiences with these people.

_____Cope with thoughts that I can't handle working these with people anymore.

_____Get help from others to better handle working with these people.

Figure 1. Secondary Trauma Self-Efficacy Scale. Original item numbers were 1, 3, 4, 5, 7, 8, and 9. Two excluded items were "Deal with the impact these people have had on my life" (Item 2) and "Keep emotional balance after realizing what had happened to these people" (Item 6).

death of someone close, and other. Participants indicated whether they had been exposed to each traumatic event with a *Yes*-or-*No* format. Additionally, they indicated how many of these potentially traumatic events they had personally experienced.

Secondary traumatic stress. The Secondary Traumatic Stress Scale (STSS; Bride, et al., 2004) is a 17-item questionnaire that measures frequency of secondary traumatic stress symptoms in the previous month. It consists of five items for the Intrusion subscale, seven items for the Avoidance subscale, and five items for the Arousal subscale. Participants were instructed to evaluate the frequency of each symptom in the relation to their work with trauma-exposed clients. A 5-point Likert-like scale was used, ranging from 1 (*never*) to 5 (*very often*). Cronbach's alphas for the present study were .94 for the total score, .81 for the Intrusion subscale, .87 for the Avoidance subscale, and .85 for the Arousal subscale.

Perceived social support. The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) measures the availability of social support with 12 items. The instruction was adjusted to refer to difficulties occurring at work. The MSPSS consists of four items for the Family subscale, four items for the Friend subscale, and four items for the Significant Other subscale. Participants rated the degree of agreement for each item on a 7-point Likert-like scale, ranging from 1 (*very strongly disagree*) to 7 (*very strongly agree*). Cronbach's alphas for the present study were .94 for the total score, .92 for the Family subscale, .95 for the Friend subscale, and .95 for the Significant Other subscale.

Negative cognitions. Posttraumatic Cognition Inventory (PTCI; Foa, Ehlers, Clark, Tolin, & Orsillo, 1999) measures negative cognitions after traumatic events and consists of the Negative Cognitions About the World, Negative Cognitions About Self, and Self-Blame subscales. Based on the original psychometric data (Foa et al., 1999), we used seven items measuring Negative Cognitions About the World and seven items assessing Negative Cognitions About Self. In the modified instruction, respondents were asked to refer to cognitions occurring after the indirect exposure to trauma. The Self-Blame subscale was not used because of ongoing discussion related to its validity and reliability (Startup, Makgekgenene, & Webster, 2007). Participants rated the degree of agreement to each item on a 7-point Likert-like scale, ranging from 1 (*totally disagree*) to 7 (*totally agree*). Cronbach's alphas for the present study were .89 for the total score, .88 for the Negative Cognitions About the World, and .85 for the Negative Cognitions About Self.

Secondary traumatic growth. Posttraumatic Growth Inventory–Short Form (PTGI–SF, Cann, et al., 2010) was used to measure positive life changes resulting from indirect exposure to trauma. The original PTGI–SF was a 10-item questionnaire measuring experience of positive change after a particular traumatic event. We modified the instruction asking participants to rate the degree of change as a result of their work with patients who were exposed to traumatic events. A 6-point Likert-like response scale was used, ranging from 0 (*I did not experience this change*) to 5 (*I experienced this change to a very great degree*). Although there are five subscales in the PTGI–SF measuring different types of changes, a total score index is used the most often measure (Cann et al., 2010). Cronbach's alpha in the present study for the total score was .92.

Demographics. Demographic questions included the year participants were born, their gender, whether they were in an intimate relationship, their profession, and their highest academic degree (Table 1).

Procedure. Potential respondents were contacted via an e-mail containing information about the study and the link to the online survey. Off-post providers, who were located in the civilian community, received the e-mail through an online newsletter sent by TriWest Healthcare Alliance, an organization managing health benefits for military patients and their families. On-post providers, who were located at military installations, received the e-mail from the director of the Department of Behavioral Health at Evans Army Community Hospital at Fort Carson, Colorado, and from the Psychology Consultant to the U.S. Army Surgeon General. Respective agencies sent out standard invitation e-mails to all employees who were potential participants and advertised the study in their internal newsletters. The response rate was not available. Informed consents were obtained. The study was approved by the institutional review board (IRB) at the University of Colorado.

Analytical procedures. Missing data for all variables were replaced with hot deck imputation (Myers, 2011). The hot deck imputation replaces a missing value with an existing value of another participant in the same group (deck) as the participant with a missing value. The deck is composed of combinations of levels of categorical variables. The use of the hot deck imputation is optimal even if missing values are not completely at random when missing values are less than 10% of all values (Myers, 2011). In total, 0.61% of values were replaced. All of the further analyses were performed on 247 participants.

With gender, intimate relationship status, and profession as categories, Little's missing completely at random (MCAR) tests showed that items were missing completely at random for the following scales: the STSE, $\chi^2(39) = 19.87$, $p = .99$, Secondary Traumatic Growth, $\chi^2(40) = 40.81$, $p = .31$, and the STSS, $\chi^2(94) = 77.78$, $p = .89$. The items of the MSPSS and PTCI were not missing completely at random, $\chi^2(33) = 55.74$, $p = .01$, and $\chi^2(115) = 178.17$, $p < .001$, respectively.

Using the SPSS Statistics (Version 20), the following statistical procedures were applied: (a) interitem correlations to analyze relationships among the STSE Scale items to eliminate items whose correlations with each other were too high or too low; (b) a principal component analysis to explore possible dimensions of the STSE Scale; (c) Cronbach's alpha to assess internal consistency reliability; (d) confirmatory factor analysis to test hypothesized unidimensionality of the scale; (e) corrected item-total correlations and Pearson's correlations to test the relationships among STSE and the measures selected to establish validity of the new instrument; and (f) a principal components analysis to examine discriminant validity (Clark & Watson, 1995) of the STSE.

The confirmatory factor analysis was performed with AMOS (Version 20). The maximum likelihood was used as an estimation method. Because univariate nonnormality and multivariate nonnormality were diagnosed, a bootstrap procedure was performed with 1,000 bootstrap samples (Byrne, 2009). Three conventional goodness-of-fit indices (Byrne, 2009) were used to evaluate global model fit: root-mean-square error of approximation (RMSEA), comparative fit index (CFI), and standardized root-mean residual (SRMR).

Results

Preliminary analyses. Corrected item-total correlations were high (Item 1: $r = .75$, Item 2: $r = .77$, Item 3: $r = .61$, Item 4: $r = .75$, Item 5: $r = .66$, Item 6: $r = .74$, Item 7: $r = .68$, Item 8: $r = .58$, and Item 9: $r = .65$; all $ps < .001$). Pearson's correlations were computed among nine items of the STSE Scale. Results of the correlations revealed that the correlation between Item 1 and Item 2 was high, $r(245) = .82$. This high correlation indicated that these two items may have measured the same aspect of secondary trauma self-efficacy. Therefore, Item 2, "Deal with the impact these people have had on my life," was dropped from further analyses because it was a more general statement than Item 1. After Item 2 was removed from the STSE Scale, Item 6, "Keep emotional balance after realizing what had happened to these people," had high correlations with Items 4, 5, and 7, all $rs > .65$ ($ps < .001$), in addition to a relatively higher corrected item-total correlations with remaining items. These high correlations indicated that Item 6 shared a high percentage of the variance with these three items specifically. Therefore, Item 6 was dropped from further analyses, resulting in seven items on the STSE Scale. The final version of the instrument is presented in Figure 1. Corrected item-total correlations for the seven-item version ranged from .53 to .79. Sample distribution analyses showed that the data were negatively skewed for all items, with the distribution differing significantly from normal ($ps < .001$).

Exploratory and confirmatory analysis. A principal components analysis was performed to explore the component structure of the seven items included in the STSE Scale. The analysis extracted one component accounting for 56.89% of the variance (eigenvalue = 3.98) on a basis of the eigenvalue greater than 1 for inclusion of a component. Factor loadings of the items ranged between .71 and .83.

A confirmatory factor analysis for a one-factor unconstrained model showed relatively poor model-data fit, RMSEA = .116, 90% lower and upper confidence limits [.087, .147]; CFI = .936; and SRMR = .047. Modification indices showed that error variances of Items 4 and 5 should covary. The modified model presented good fit with RMSEA of .071, 90% lower and upper confidence limits [037, .106]; CFI of .978; and SRMR of .036. In sum, the results indicated that the seven-item STSE Scale consisted of one component.

A confirmatory factor analysis conducted with the bootstrapping yielded similar fit indices and factor loadings, and therefore suggested good model-data fit. Additional analyses showed that model-data fit was poor (with RMSEA values above .10) when confirmatory factor analyses were conducted for eight-item and nine-item versions of the STSE Scale, with two previously excluded items (2 and 6) taken into account.

Reliability and validity analyses. Internal consistency of the seven-item STSE Scale was $\alpha = .87$, which suggests good reliability. To examine validity of the STSE scale, we computed Pearson's correlations among STSE and theoretically relevant constructs (i.e., secondary traumatic stress, social support, secondary traumatic growth, negative cognitions). As expected, STSE was negatively correlated with secondary traumatic stress and negative cognitions (cf. Table 2), with 29.2% shared variance. Consistent with our expectation, STSE was positively correlated with social support. There was a small significant positive correlation between STSE and secondary traumatic growth. Results of partial correlation analyses (with the number of direct trauma exposures controlled) indicated that the associations between STSE and the other study variables remained significant and similar in size (Table 2).

Table 2

Pearson's Correlations Among the Study Variables

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. STSE		.23***	.24***	.26***	.20***	−.64***	−.49***	−.60***	−.61***	.13*			.04	
2. Support: Total	.32***		.89***	.90***	.93***	−.17**	−.07	−.22***	−.15*	.13*			.04	.25***
3. Support: Family	.27***	.87***		.67***	.75***	−.17**	−.03	−.23***	−.16**	.14*			.02	.24***
4. Support: Friends	.32***	.80***	.54***		.79***	−.17**	−.10	−.20**	−.15*	.10			.04	.26***
5. Support: Others	.23***	.85***	.63***	.49***		−.12**	−.06	−.16**	−.10	.10			.06	.20**
6. STSS: Total	−.54***	−.33***	−.30***	−.29***	−.24***		.83***	.89***	.95***	−.05			.07	−.65***
7. STSS: Intrusion	−.43***	−.21**	−.18**	−.22**	−.13*	.87***		.52***	.73***	.07			.07	−.49***
8. STSS: Avoidance	−.54***	−.39***	−.36***	−.33***	−.28***	.94***	.71***		.79***	−.16**			.08	−.61***
9. STSS: Arousal	−.51***	−.28***	−.23***	−.24***	−.23***	.94***	.77***	.83***		−.03			.04	−.61***
10. Secondary traumatic growth	.14*	.14*	.13*	.12*	.10	.10	.13*	.06	.12*				.05	.13*
11. Negative cognitions: World	−.32***	−.30***	−.29***	−.28***	−.20***	.47***	.34***	.49***	.45***	−.08				
12. Negative cognitions: Self	−.51***	−.39***	−.37***	−.33***	−.30***	.56***	.40***	.57***	.53***	−.10	.52***			
13. Direct trauma exposure	.05	−.11	−.12	−.01	−.13*	.19**	.05	.21***	.22***	.10	.16*	.04		
14. STSE[a]		.38***	.30***	.35***	.30***	−.55***	−.40***	−.54***	−.52***	.16*	−.32***	−.49***		

Note. Correlations in upper diagonal region show values for Polish data (Study 2). Correlations in lower diagonal region show values for U.S. data (Study 1). STSE = Secondary Trauma Self-Efficacy; Support = Perceived Social Support Scale scores; STSS = Secondary Traumatic Stress Scale; Direct trauma exposure in Study 1 represents the number of direct trauma experiences; direct trauma exposure in Study 2 represents whether participants have experienced any of direct traumatic events (with direct exposure dummy coded using 0 = *no* and 1 = *yes*).
[a] Direct exposure partialed out.
* $p < .05$. ** $p < .01$. *** $p < .001$.

To examine discriminant validity of the STSE Scale, we performed a principal components analysis with the seven items of the STSE Scale and the randomly selected seven STSS items. Based on eigenvalue greater than 1 as the inclusion criterion, we identified two components accounting for a total of 55.82% of the variance (eigenvalue = 7.81). One component consisted of the seven items of the STSE Scale (factor loadings ranging from .69 to .80), and the other component consisted of the seven STSS items (factor loadings ranging from .51 to .84).

Study 2

The results of Study 1 provided preliminary support for validity and reliability of the STSE Scale, as well as for its unifactorial structure. As data were collected cross-sectionally, the time stability of the scale was not tested. Moreover, participants worked with a specific population (i.e., traumatized military patients). A longitudinal cross-validation study conducted in a different sample of professionals (i.e., indirectly exposed to civilian-related traumas) was needed. To rectify these limitations, we designed Study 2 to longitudinally evaluate the psychometric properties of the STSE Scale among workers providing services to traumatized civilian population within a different cultural context (in Poland). Extending the findings of Study 1, Study 2 provided a cross-cultural cross-validation study.

Method

Participants. Health care and social workers providing services for civilian survivors of traumatic events participated in the research. The study was a part of a larger investigation focusing on determinants of how job demands and resources contribute to development of secondary traumatic stress. Inclusion criteria for the present study were (a) working at least 1 year as a health care provider (nurse or paramedic) or social worker; (b) providing services for a civilian population suffering from trauma; and (c) being indirectly exposed to trauma through interaction with patients or clients. Of 309 participants, three participants were excluded because they reported having no exposure to potential secondary traumatic events; this resulted in a sample of 306 participants (71 men, 23.2%). Table 1 displays demographic information of the sample. The mean age was 35.41 years old (SD = 8.59) at Time 1. The sample consisted of 148 health care providers (48.4%), 115 social workers (37.6%), and 39 other professionals (12.3%). A lower average education level among Study 2 participants compared with those in Study1 resulted from the differences in the occupations and the national regulations pertaining to the academic degree required for registered practice. In particular, 47% of Study 1 participants were clinical psychologists, who are required to have a doctorate degree in order to practice, whereas the majority of Study 2 participants were nurses and social workers who are required to have a bachelor's or master's degree in order to practice their profession. Participants were indirectly exposed to different types of traumatic events at work, including life-threatening illness or injury (88.9%); physical assault (87.3%); sudden, unexpected death of someone close (82.7%); transportation accident (73.2%); natural disaster (30.1%); or military-related trauma (9.5%). Additionally, 75% of respondents reported that they experienced a direct exposure to traumatic event

at least once. The number of direct exposures to trauma was not assessed.

Of those 306 participants who completed the Time 1 assessment, 193 (37 men, 19.2%) took part in Time 2 measurement (see Table 1 for demographics). Attrition analysis showed no significant differences between completers and dropouts in terms of age, items of the STSE Scale, and the STSE Scale total score (ts < 1.47, ns), as well as relationship status and education (χ^2s < 4.78, ns). However, compared with dropouts, completers were more often women and social workers, χ^2 > 4.45, p < .05. The mean age for Time 2 was 35.41 years (SD = 8.59). The sample for Time 2 consisted of 88 health care providers (45.6%), 79 social workers (40.9%), 23 others (11.9%), and three respondents who did not provide information about their profession (1.6%).

Measures. Participants completed the same set of measures as in Study 1, such as (a) Secondary Trauma Self-Efficacy Scale (α = .88); (b) Secondary Trauma Exposure Scale; (c) Secondary Traumatic Stress Scale (αs = .93 for a total score and .79 for Intrusion, .85 for Avoidance, and .87 for Arousal Symptoms subscales); (d) Multidimensional Scale of Perceived Social Support (αs = .96 for a total score and .96 for Support From Family, .96 for Support From Friends, and .93 for Support From Significant Others subscales); and the short form of the Posttraumatic Growth Inventory (α = .92). The Secondary Trauma Exposure Scale in Study 2 assessed whether participants have experienced directly any of the 10 traumatic events. The scale measuring the negative cognitions about the world and self was not included. The Polish versions of the scales were prepared using back-translation procedures. As in Study 1, participants were asked to respond to the items in the context of work-related indirect exposure to trauma.

Procedure. Data were collected with a web-based survey. The following recruitment strategies were applied: distribution of leaflets and a public presentation of the study during the annual national meetings of professional organizations, advertisements in specialist journals reaching all registered professionals, and information posted on web sites for specialists and practitioners (mental health professionals, nurses, doctors, and emergency and social services workers) working with traumatized clients. Those who were interested were informed about the study aims; they then provided informed consent and filled out the questionnaires. Six months later, respondents received an e-mail invitation to take part in Time 2 measurement. The mean time elapsed between Time 1 and Time 2 surveys was 162.26 days (SD = 39.35). Personal identification codes were used to secure anonymity. The study was approved by the IRB at the first authors' home institution in Poland.

Analytical procedures. As in Study 1, missing data were replaced using the hot deck imputation method (Myers, 2011). In total, 1.59% values were replaced. The Little's MCAR tests indicated that items were missing completely at random for the following scales: the STSE Scale at Time 1, χ^2(16) = 18.22, p = .31; the STSE Scale at Time 2, χ^2(30) = 32.92, p = .32; the MSPSS, χ^2(98) = 115.81, p = .11; and the STSS, χ^2(193) = 217.20, p = .11. The PTGI items were not missing completely at random, χ^2(53) = 80.06, p = .01.

Cronbach's α served as the index of internal consistency reliability. Pearson's correlation was used to assess test–retest reliability by correlating Time 1 and Time 2 STSE scores and to test validity of the scale by correlating STSE with the relevant con-

structs. We performed the exploratory and confirmatory factor analyses using the same procedure, software, and interpretation criteria as in Study 1.

Results

Preliminary analyses. Table 1 displays means and standard deviations of all variables. In line with Study 1, Items 2 and 6 were removed from nine-item version of the STSE Scale, and the seven-item version was used for further analysis. Pearson's correlations among nine items of the STSE Scale (Time 1) showed that the correlation between Items 1 and 2 was high, $r(304) = .81$, $p < .001$, and that Item 6 was highly correlated with Items 4, 5, and 7, $rs > .68$. Sample distribution showed that Items 1, 3, 4, and 7 were normally distributed, and Items 5, 8, and 9 were mildly and negatively skewed, with the distribution differing significantly from normal ($ps < .001$).

Exploratory and confirmatory factor analysis. Using the data obtained from 306 participants, we performed the principal components analysis to explore possible dimensions of the STSE Scale (Time 1). The analysis extracted only one component accounting for 61.87% of the variance (eigenvalue = 4.33). Factor loadings for the seven items ranged between .64 and .87.

The confirmatory factor analysis was performed to further evaluate the parameter estimates and model fit of the one-factor solution of the STSE Scale. In line with Study 1, error variances of Items 4 and 5 were assumed to covary. The analysis, conducted for 306 participants, suggested good model-data fit with RMSEA = .050, 90% lower and upper confidence limits [.008, .083], CFI = .991, and SRMR = .023. These results showed that the STSE Scale consisted of one primary component.

Reliability and validity of the STSE scale. Internal consistency of the STSE Scale was assessed at both time points. Cronbach's alpha values were .89 at Time 1 and .88 at Time 2, indicating good internal consistency. Test–retest reliability was examined on the sample of 193 participants who completed the STSE Scale at both measurement points (165-day period). The association between the STSE scores at Time 1 and Time 2 was high, $r(191) = .65$, $p < .001$.

Table 2 displays correlations among STSE at Time 1 and theoretically relevant constructs. As expected, STSE was negatively correlated with secondary traumatic stress. Consistent with the hypotheses and the results of Study 1, STSE was positively

correlated with social support. In line with the results of Study 1, STSE and secondary traumatic growth were positively associated, although the correlation was small. Results of partial correlations (with direct trauma exposure controlled) indicated that associations between STSE and the other study variables remained significant and similar in size (Table 2). Across the study variables, participants exposed to trauma directly did not differ from those without a direct exposure (all $Fs < 1.93$, $ps > .168$).

Factor model invariance. A two-group model representing the respective samples was tested in order to evaluate if the one-factor structural model tested in Study 1 and Study 2 was invariant across the U.S. ($n = 247$) and Polish ($n = 306$) samples. Because of multivariate nonnormality, the bootstrap procedure was performed (Byrne, 2009). Table 3 displays the goodness-of-fit statistics for the two-group model. Compared with the unconstrained model (see Model 1, Table 3), the model with factor loadings, variances, and the covariance constrained to be equal in both groups (Model 2, Table 3) differed significantly in terms of fit indices, $\Delta\chi^2(15) = 90.02$, $p < .001$. Therefore, Model 2 was rejected. Further, the model with error variances constrained to be equal for two groups (Model 4, Table 3) was also rejected, $\Delta\chi^2(9) = 76.91$, $p < .001$.

Further analyses showed that the nested model with factor loadings constrained to be equal across both groups (Model 3, Table 3) did not differ from the unconstrained model, $\Delta\chi^2(6) = 10.69$, ns, and therefore Model 3 should be accepted. Additionally, the model with the covariance constrained to be equal in both groups (Model 5, Table 3) did not differ from the unconstrained model, $\Delta\chi^2(1) = 0.40$, ns, and therefore Model 5 should be accepted. Based on these results, the final model with factor loadings and the covariance constrained to be equal across both groups (Model 6; Table 3) was compared with the unconstrained model. The results indicated that the final model did not differ form the unconstrained model, $\Delta\chi^2(7) = 10.72$, ns, and therefore Model 6 may be accepted as the final model. Factor loadings of the items in the final model are displayed in Figure 2.

Differences in associations across Study 1 and Study 2. Across both studies, similar Pearson's correlations were found among STSE Scale and the following indices: Perceived Social Support–total score, $z = 1.13$, $p = .26$; Perceived Support From Family, $z = 0.37$, $p = .71$; Perceived Support From Friends, $z = 0.76$, $p = .44$; Perceived Support From Significant Others, $z =$

Table 3

Goodness-of-Fit Statistics for Tests of Invariance of Factor Structure for Study 1 and Study 2

Model Description	χ^2	χ^2/df	RMSEA	CFI	SRMR	GFI	NFI	$\Delta\chi^2$	ΔNFI
1. Hypothesized model (unconstrained)	51.19	2.01	.043	.986	.036	.974	.972	—	—
2. Factor loadings, variances, and covariance constrained to be equal	142.20	3.47	.067	.945	.068	.937	.925	90.02***	.048
3. Factor loadings constrained to be equal	62.87	1.97	.042	.983	.045	.969	.967	10.69	.006
4. Variances constrained to be equal	129.10	3.69	.070	.949	.053	.942	.932	76.91***	.041
5. Covariance constrained to be equal	52.59	1.95	.041	.986	.036	.974	.972	0.40	.000
6. Factor loadings and covariance constrained to be equal (final model)	62.91	1.91	.041	.984	.045	.969	.967	10.72	.006

Note. The $\Delta\chi^2$ indicates a change in a chi-square statistic from the hypothesized model; df = degrees of freedom. RMSEA = root-mean-square error of approximation; CFI = comparative fit index; SRMR = standardized root-mean-square residual; GFI = goodness-of-fit index; NFI = normed fit index.
*** $p < .001$: A significant $\Delta\chi^2$ value indicates that the model was not a good fit for the hypothesized model.
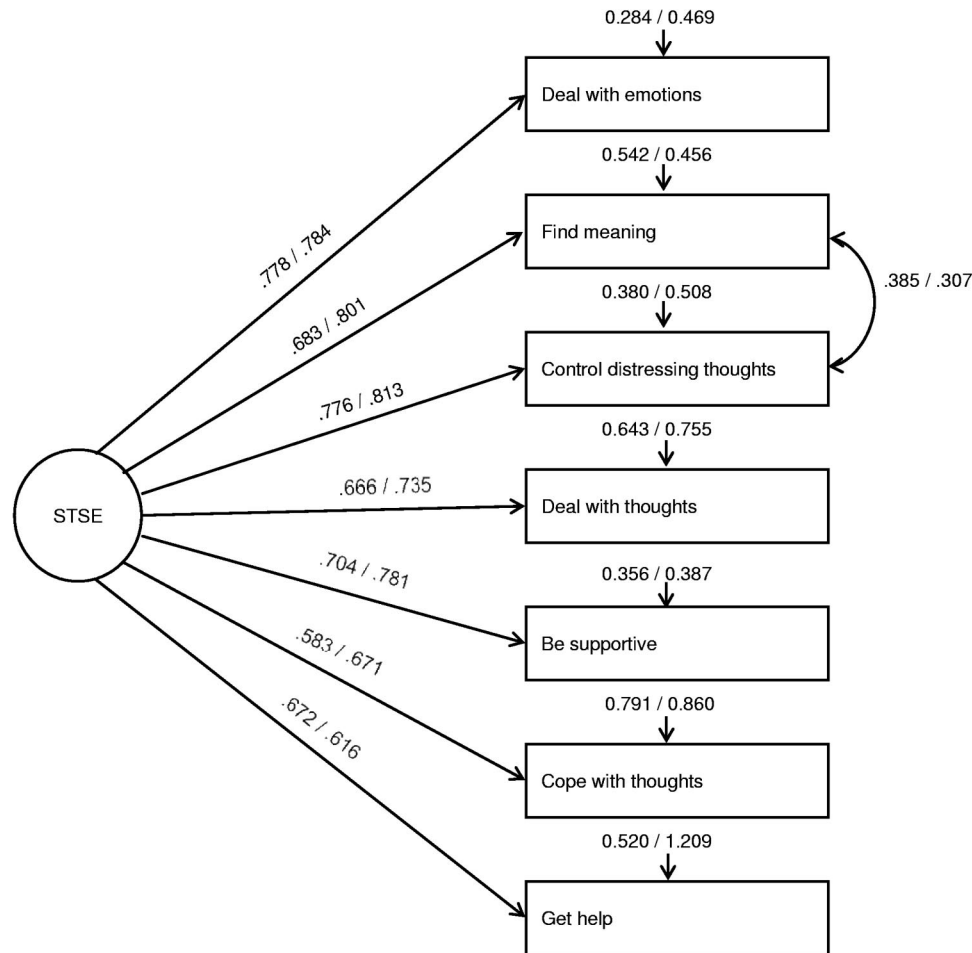
Figure 2. Final two-group confirmatory factor analysis model of the Secondary Trauma Self-Efficacy Scale. Standardized regression weights (i.e., factor loadings), variances, and correlations between error variances are presented. In the final model, factor loadings and covariance are constrained to be equal in Study 1 and Study 2. Numbers before the slash refer to Study 1; numbers after the slash refer to Study 2. STSE = Secondary Trauma Self-Efficacy. Full list of the STSE Scale items presented in Figure 1. All parameters significant at *p* < .001.

0.37, *p* = .71; Secondary Traumatic Stress–total score, *z* = 1.79, *p* = .07; Secondary Traumatic Stress–Intrusion subscale, *z* = 0.89, *p* = .38; Secondary Traumatic Stress–Avoidance subscale, *z* = 1.04, *p* = .30; Secondary Traumatic Stress–Arousal subscale, *z* = 1.70, *p* = .08; and Secondary Traumatic Growth, *z* = 0.12, *p* = .91. In sum, the associations found in the two studies (Table 2) did not differ significantly.

General Discussion

Our studies evaluated the characteristics of the Secondary Trauma Self-Efficacy (STSE) Scale, a measure designed to capture beliefs about the ability to deal with barriers associated with secondary exposure to trauma. This short seven-item scale tackles the barriers of tasks at work (including providing services to trauma survivors), but it also refers to controlling emotional and cognitive reactions related to the indirect exposure. Compared with other measures of self-efficacy that were previously applied in the context of exposure to secondary trauma, the STSE Scale is specific to challenges posed by the indirect exposure to trauma, including environmental (i.e., work-related) and individual (cognitive and emotional) demands. As proposed in SCT, self-efficacy beliefs, which make a difference in specific stressful situations, should closely reflect the demands related to this situation (cf. Bandura, 1997). Further, in line with optimal matching hypothesis (Cutrona, 1990), the scale matching both stressful demands and stress outcomes may offer the best approach to investigating self-efficacy related to secondary exposure.

Results of the present studies supported the one-factor structure of the STSE Scale and its good reliability. Factor analyses comparing the two language versions indicated the invariant structure of the scale. Such structure is in line with SCT, assuming that self-efficacy is a one-dimensional construct (Bandura, 1997). Unifactorial structure of other types of self-efficacy, such as general self-efficacy or self-efficacy referring to coping with one's own

trauma, were also confirmed in studies testing psychometric characteristics of other self-efficacy measures (Hyre et al., 2008; Lambert et al., 2012; Schwarzer & Jerusalem, 1995). Further, self-efficacy referring to secondary trauma, measured with the STSE Scale, showed high stability over 6 months. According to SCT, moderate to high stability may be expected, because self-efficacy may fluctuate over time due to mastery experiences over environmental and intrapersonal challenges (Bandura, 1997). In sum, the results provide evidence for good psychometric properties of the scale and verify its theoretically assumed structure.

In both studies, secondary trauma self-efficacy was related to the selected constructs, as hypothesized. The negative associations between STSE and secondary traumatic stress were significant and moderate, indicating that beliefs about ability to deal with challenges related to secondary trauma exposure are important in predicting lower levels of secondary traumatic stress. The size of correlation coefficients corresponds to associations between self-efficacy and health outcomes reported in meta-analyses dealing with survivors of primary trauma (Luszczynska et al., 2009). In the only other study testing for associations between secondary traumatic stress and self-efficacy (Bonach & Heckert, 2012), researchers applying a measure of efficacy that referred to respondents' own role and efficiency at work found weak associations, and only 1% of secondary traumatic stress variance was explained. In contrast, self-efficacy measured with STSE Scale explains 23%–39% of variance in secondary traumatic stress. In conclusion, the STSE Scale showed a potential to help explain the psychological distress process among workers exposed to secondary trauma.

The correlations between secondary trauma self-efficacy and other trauma-related cognitions such as negative cognitions about self and about the world (Foa & Rothbaum, 1998) and secondary traumatic growth were significant (higher self-efficacy was associated with less negative cognitions and with higher growth) and in the low to moderate range. Therefore, the amount of variance shared between these variables was not high, confirming that STSE and other constructs are distinct aspects of cognitive functioning after secondary exposure to trauma. Similar strength of associations between self-efficacy and cognitions about self and the world was found in research dealing with victims of primary exposure to trauma (Cieslak et al., 2008). We have identified no other study showing associations between self-efficacy and cognitions about self and the world in the context of secondary trauma exposure; therefore, our findings provide a preliminary novel evidence for the interplay between positive and negative cognitions among professionals exposed to secondary trauma. Future research should investigate if these general negative cognitions operate through trauma-specific cognitions, such as STSE.

Finally, secondary trauma self-efficacy measured with the STSE Scale was moderately related to higher levels of social support from family, friends, and other significant sources. The findings are in line with posttraumatic adaptation model assuming that social resources should foster self-efficacy beliefs (Benight & Bandura, 2004) as well as in line with models explaining associations between social support and cognitions (Schwarzer & Knoll, 2007). Further, models explaining factors affecting practitioners working with clients exposed to trauma focused solely on support from work-related sources (cf. Voss Horrell et al., 2011). Our findings suggest that support from sources outside work may also play a relevant role. As two previous studies accounting for self-

efficacy and social support among professionals exposed to secondary trauma did not test for the associations between these constructs (Bonach & Heckert, 2012; Ortlepp & Friedman, 2002), no comparison between our results and previous research can be made. Our findings, therefore, provide novel preliminary evidence for the relationship between self-efficacy and support from sources outside work.

In sum, the present research provides evidence for the validity of the STSE Scale. All hypothesized associations of secondary trauma self-efficacy with the secondary traumatic stress, negative cognitions, secondary traumatic growth, and perceived social support were confirmed. The sizes of correlation coefficients were similar in both language versions of the STSE Scale. Future studies are needed to further evaluate whether the STSE Scale is a superior predictor of adaptation after secondary exposure to trauma, compared with other measures of self-efficacy, such as general self-efficacy (Schwarzer & Jerusalem, 1995) or work-related efficacy (Bonach & Heckert, 2012).

The strength of our research lies in testing the STSE Scale properties in two different contexts. Similar patterns of associations emerged from data collected in the United States and Poland, and the two language versions showed similar psychometric properties. The findings were similar for workers exposed to civilian-related secondary trauma and those who were exposed to secondary trauma through providing services to military personnel. These results indicate that the STSE Scale is a robust measure and allow for a preliminary conclusion that secondary trauma self-efficacy may have similar properties and operate similarly across different cultural contexts. Further research is needed to investigate individuals in different types of occupations, such as oncology nurses or juvenile justice education workers, who may suffer from relatively high levels of secondary traumatic stress (Bride et al., 2007; Dominguez-Gomez & Rutledge, 2009; Hatcher et al., 2011).

The utility of the STSE Scale in secondary trauma experiences that are unrelated to work, such as secondary trauma exposure reported by partners of cancer patients or spouses of military service members, may be low. Three items of the STSE Scale refer to barriers experienced due to working with traumatized individuals. Further, a reference to interaction with other people at work may not be ideal in case of some professionals exposed to secondary trauma, such as clergy members (Hendron, Irving, & Taylor, 2012). The phrase "working with these people" could be replaced with "interacting with these people," but other versions of the STSE Scale with language adjustments would require additional psychometric evaluations.

Our research has some limitations. Data were collected among relatively heterogeneous samples, but several occupational groups that may suffer from relatively high secondary traumatic stress were not included (e.g., emergency nurses or juvenile justice system workers; Dominguez-Gomez & Rutledge, 2009; Hatcher et al., 2011). Although both studies applied multiple recruitment strategies in order to reach diverse target populations, these are both convenience samples. Future research needs to account for the representativeness of the samples.

The utility of the STSE Scale was not compared with the utility of other measures of self-efficacy. The instructions in the original measures assessing social support, growth, and negative cognitions were modified in order to tackle participants' functioning in the context of work-related secondary exposure. Changing more gen-

eral measures (i.e., referring to any type of trauma exposure or any type of stressful event) into specific measures by means of narrowing down the instructions might inflate the observed associations between the constructs. The number of situations of direct exposure to traumatic events was not evaluated in Study 2. Future research needs to account for other occupational groups, different types of self-efficacy, and other stress outcomes, such as job burnout or diminished quality of life. Studies aiming at further psychometric evaluation of the STSE Scale may consider including additional items to assure that the STSE concept is covered in a sufficiently broad way. On the other hand, short versions of the STSE Scale may be needed for multivariate investigations. Future studies need to clarify how the secondary trauma self-efficacy construct may operate and whether it influences practitioners' well-being and their effectiveness at work. Developing a psychometrically sound measure of the secondary trauma self-efficacy was an essential step preceding research on evaluating mechanisms and the effects of secondary trauma self-efficacy.

The present study investigated the properties of a new measure of self-efficacy, referring to coping with secondary trauma experiences. The data collected among professionals working with civilians and military trauma victims indicated good psychometric characteristics of the STSE Scale and its invariance for two language versions. The interest in research on secondary traumatic stress is growing as organizations and practitioners call for identifying protective factors (Elwood et al., 2011; Tyson, 2007; Voss Horrell et al., 2011). Secondary trauma self-efficacy may constitute one of the key protective individual resources, promoting well-being and operating in concert with other individual and environmental resources (Luszczynska et al., 2009). Our research proposes a new measure to assess this personal resource.

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Secondary Traumatic Stress among Mental Health Providers Working with the Military:

Prevalence and its Work- and Exposure- Related Correlates

Roman Cieslak, PhD[1,2]; Valerie Anderson, PsyD [1]; Judith Bock, PsyD[1]; Bret A. Moore, PsyD[3];

Alan L. Peterson, PhD[4]; and Charles C. Benight, PhD[1]

[1]Trauma, Health, and Hazards Center, University of Colorado, Colorado Springs, CO
[2]Department of Psychology, Warsaw School of Social Sciences and Humanities, Warsaw, Poland
[3]Warrior Resiliency Program, Southern Regional Medical Command, San Antonio, TX
[4] Department of Psychiatry, The University of Texas Health Science Center at San Antonio, San Antonio, TX

Correspondence concerning this article should be addressed to Charles C. Benight,

Trauma, Health, and Hazards Center, University of Colorado, 1420 Austin Bluffs Parkway,

Colorado Springs, CO, 80918. E-mail: cbenight@uccs.edu

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or the U.S. Government.

Abstract

Our research assessed the prevalence of secondary traumatic stress among mental health providers working with military patients. We also investigated personal, work-, and exposure-related correlates of secondary traumatic stress. Finally, using meta-analysis, the average level of secondary traumatic stress symptoms in this population was compared to the average level of these symptoms in other groups. Participants ($N = 224$) completed measures of indirect exposure to trauma (i.e., diversity, volume, frequency, ratio), appraisal of secondary exposure impact, direct exposure to trauma, secondary traumatic stress, and work characteristics. The prevalence of secondary traumatic stress was 19.2%. Personal history of trauma, complaints about having too many patients, and more negative appraisals of the impact caused by an indirect exposure to trauma were associated with higher frequency of secondary traumatic stress symptoms. A meta-analysis showed that the severity of intrusion, avoidance, and arousal symptoms of secondary traumatic stress was similar across various groups of professionals indirectly exposed to trauma (e.g., mental health providers, rescue workers, social workers).

Keywords: secondary traumatic stress; indirect exposure to trauma; mental health providers; military trauma

Secondary Traumatic Stress among Mental Health Providers Working with the Military:

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INTRODUCTION

The rates of Posttraumatic Stress Disorder (PTSD) among the U.S. military and veterans across studies range from a current prevalence of 2% to 17% to a lifetime prevalence of 6% to 31% (Richardson, Frueh, & Acierno, 2010). These rates are higher than in the general U.S. population where the current prevalence is 3.5% (Kessler, Chiu, Demler, Merikangas, & Walters, 2005) and lifetime prevalence is 6.8% (Kessler, Berglund, et al., 2005). The numbers of military or veteran patients seeking mental health care has grown drastically in recent years. The Department of Veterans Affairs (VA) alone has observed a 200% increase in the number of patients with PTSD receiving behavioral health services, from 139,062 in 1997 to 279,256 in 2005 (Rosenheck & Fontana, 2007). With a growing need for treatment, the VA alone added 4,330 mental health professionals to its workforce (Voss Horrell, Holohan, Didion, & Vance, 2011). These statistics show the population affected indirectly by trauma, through providing services for traumatized patients, is growing rapidly. Given the exponential increase in clinical need and potential for secondary exposure by military mental health providers, the purpose of this investigation was threefold: (a) explore the prevalence of secondary traumatic stress among mental health providers working with military patients and compare the severity of secondary traumatic stress symptoms in this population to other mental health providers; (b) test the relationship between indirect exposure to trauma and secondary traumatic stress; and (c) investigate the possible correlates of secondary traumatic stress. These aims were achieved through a two-study approach with Study 1 focused on prevalence and correlates of STS and

Study 2 conducting a meta-analysis to compare our sample prevalence with other indirectly exposed samples.

Psychosocial Effects of Indirect Trauma Exposure Across Occupational Groups

Whereas most studies examining the effects of PTSD have focused on trauma survivors or victims, information about the effect on providers delivering trauma treatment is more limited. Indirect (also called vicarious or secondary) exposure to trauma through work with traumatized patients might have a positive effect on providers' posttraumatic growth (Brockhouse, Msetfi, Cohen, & Joseph, 2011), but it is also predictive of higher distress (Pearlman & Mac Ian, 1995), increased negative cognitions (e.g., low level of self-trust) (Pearlman & Mac Ian, 1995), and higher job burnout (Ballenger-Browning et al., 2011).

The majority of studies investigating the negative effects of indirect trauma exposure on mental health providers have focused on a set of conceptually overlapping outcomes. These include vicarious traumatization (McCann & Pearlman, 1990), compassion fatigue (Figley, 2002), and secondary traumatic stress (Bride, Robinson, Yegidis, & Figley, 2004). The ongoing discussion about the similarities and differences between these concepts (Jenkins & Baird, 2002) shows their definitions share one or more of the following components: indirect exposure to a traumatic material, PTSD symptomology, and negative shifts in therapists' cognitive schema. *Secondary traumatic stress* is usually associated with therapists' PTSD-like reactions, such as intrusive re-experiencing of the traumatic material, avoidance of trauma triggers and emotions, and increased arousal, all resulting from indirect exposure to clients' trauma (Bride et al., 2004). *Compassion fatigue* is defined as reduced empathic capacity or client interest manifested through behavioral and emotional reactions from exposure to traumatizing experiences of others (Adams,

Boscarino, & Figley, 2006). Finally, *vicarious trauma* is the negative cognitive shift in

therapists' worldview (McCann & Pearlman, 1990).

The incongruities in these definitions have led to some research discrepancies on the

consequences of indirect trauma exposure and have also hindered cross-sample comparisons.

This study utilized the term *secondary traumatic stress* (STS) to measure the indirect exposure to

clients' trauma material that leads to the providers' PTSD-like symptoms of re-experiencing,

avoiding, and hyperarousal, corresponding with criteria B, C, and D, respectively, of the revised

fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-IV-TR*;

American Psychiatric Association [APA], 2000).

Prevalence of secondary traumatic stress differs across studies and occupation groups.

For example, when measured with the Secondary Traumatic Stress Scale (STSS; Bride et al.,

2004), *DSM-IV-TR* (APA, 2000) criteria B, C, and D for a PTSD-like diagnosis of secondary

traumatic stress were met by 15.2% of social workers (Bride, 2007), 16.3% of oncology staff

(Quinal, Harford, & Rutledge, 2009), 19% of substance abuse counselors (Bride, Smith Hatcher,

& Humble, 2009), 20.8% of providers treating family or sexual violence (Choi, 2011a), 32.8% of

emergency nurses (Dominguez-Gomez & Rutledge, 2009), 34% of child protective services

workers (Bride, Jones, & Macmaster, 2007), and 39% of juvenile justice education workers

(Smith Hatcher, Bride, Oh, Moultrie King, & Franklin Catrett, 2011). There is no estimation of

prevalence of secondary traumatic stress among mental health specialists providing treatment for

military and veteran patients. In addition, we were unable to identify any research on severity of

the intrusion, avoidance, and arousal symptoms in this specific group of providers. Therefore,

the present study aimed at identifying secondary traumatic stress prevalence and symptom

severity among mental health providers working with military patients.

Using a meta-analytic approach, we aimed to compare the severity of the secondary traumatic stress symptoms identified in the present study sample to the severity of these symptoms among other populations offering services to traumatized clients. As the discrepancies between studies testing the prevalence of secondary traumatic stress may result from applying different assessment methods, *prevalence meta-analysis* should compare data collected with the same measure (e.g., the Secondary Traumatic Stress Scale; Bride et al., 2004).

The Complexity of Indirect Exposure to Trauma

The next aim of the study was to investigate the basic assumption that indirect exposure to traumatic events is a critical factor in the development of secondary traumatic stress symptoms. Whereas measuring direct exposure to trauma is a standard approach in studies on PTSD, many studies on secondary traumatic stress focus more on the PTSD-like symptoms, reflecting *DSM-IV-TR* criteria B, C, and D for a PTSD diagnosis (APA, 2000), and pay less attention to the indirect exposure (criterion A1) hypothetically causing these symptoms. Moreover, even if a measure of indirect exposure is used in a study, it is often analyzed as a dichotomous or one-dimensional variable, usually referring to duration of work with traumatized patients (Galek, Flannelly, Greene, & Kudler, 2011; Devilly, Wright, & Varker, 2009).

Assuming exposure to trauma patients is a one-dimensional construct may partially explain the inconsistencies in research on the associations between indirect trauma exposure and secondary traumatic stress (Sabin-Farrell & Turpin, 2003). To clarify which aspects of the exposure may be relevant for secondary traumatic stress, we accounted for four indices of indirect trauma exposure in mental health providers: diversity, volume, frequency, and ratio. *Diversity* reflected the variety of indirect trauma exposure and allows for determining whether a provider treats patients for PTSD caused by one type of traumatic event (e.g., natural disaster), or

whether a provider offers services for patients with PTSD caused by multiple types of traumatic events (e.g., a combat-related experience, transportation accident). *Volume* referred to the number of patients treated for exposure to a traumatic event. *Frequency* indicated how often a provider was exposed to a patient's traumatic material. *Ratio* indicated the percentage of traumatized patients in the provider's caseload. Further, because mental health providers in this study provided their services to military and veteran patients, the ratio of patients suffering from trauma caused by a military combat experience was also considered.

Psychosocial and Work-Related Correlates

In addition to the indirect exposure to trauma, organizational and individual factors may affect professionals working with traumatized military patients (Voss Horrell et al., 2012). For example, a provider's own *direct* exposure to traumatic events may contribute to secondary traumatic stress symptomatology (cf. Devilly et al., 2009). Thus, one's personal trauma history should be accounted for when testing for the relationship between indirect exposure and secondary traumatic stress. Recent research indicated, however, that the results of studies testing the relationship between personal history of trauma and secondary traumatic stress were inconclusive (Elwood, Mott, Lohr, & Galovski, 2011). The discrepancies in the results may, to some degree, depend on the type of the direct trauma exposure measured. For example, lifetime personal history of trauma, but not past-year trauma exposure, was positively correlated to secondary traumatic stress in child protective services workers (Bride et al., 2007).

Theories of PTSD emphasize the importance of cognitive appraisals as contributors to the etiology and maintenance of PTSD (Dalgleish, 2004; Ehlers & Clark, 2000). In particular, negative appraisals about the nature and meaning of the event (e.g., whether it offers threat or safety), about the self (e.g., reactions to the event and subsequent trauma symptoms), and about

the world (e.g., other people's reaction to the event) are all said to contribute to the development

of posttraumatic distress (Ehlers & Clark, 2000). Other types of *cognitive appraisals* may

involve evaluations of the importance or impact of the stress exposure on subsequent

functioning. Indeed, theories of stress assume this type of cognitive appraisal as a key

component of stress and adaptation processes predictive of stress consequences (Lazarus &

Folkman, 1984). Further, the individual's appraisal of the impact of the exposure is related to

the *DSM-IV-TR* (APA, 2000) criterion F for the PTSD diagnosis regarding the significance of

functional impairment. Therefore, the present study investigated the relationship between the

mental health providers' appraisal of the impact of the indirect exposure and STS symptoms.

In addition to the indirect exposure, appraisal of its impact, and direct exposure to

trauma, some *work characteristics* may also predict secondary traumatic stress in mental health

providers. Theories explaining distress among workers highlighted that work-related demands

and work-related support have predicted employees' well-being (Cieslak, Knoll, & Luszczynska,

2007; Van der Doef & Maes, 1999). In line with this assumption, work-related characteristics

were found to predict secondary traumatic stress symptoms, and their effect was stronger than

the effect of the indirect exposure (Devilly et al., 2009).

One work-related characteristic specific to mental health providers is the *type of

psychotherapy* provided, such as Prolonged Exposure. One might consider this to be a risk

factor for therapists, yet any assumptions should be made with caution, as providing exposure

therapy for trauma patients was not found to be related to secondary traumatic stress, whereas

clinicians who advocate exposure therapy but do not provide it for patients were found to present

strong secondary traumatic stress symptomatology (Deighton, Gurris, & Traue, 2007).

Professional *social support* is often identified as a protective factor for the development of secondary traumatic stress. The results, however, are ambiguous even for studies using the same measure of secondary traumatic stress. For example, investigators of Internet child pornography who indicated high social support from family and friends reported low secondary traumatic stress, but strong reliance on coworkers was correlated to high secondary traumatic stress (Perez, Jones, Englert, & Sachau, 2010). High work-related social support was found to predict a low level of avoidance symptoms but was unrelated to intrusion and arousal symptoms of secondary traumatic stress (Argentero & Setti, 2011). Additionally, some aspects of organizational support (e.g., informational support) seem to be an important protective factor for development of secondary traumatic stress symptomatology (Choi, 2011b). There is also evidence for reducing secondary traumatic stress symptoms through professional support received in clinical supervision (Creamer & Liddle, 2005). This evidence shows that professional supervision may constitute a protective factor for development of secondary traumatic stress. Collectively, the research is equivocal on the positive and negative effects of professional support for mental health providers.

STUDY 1: PREVALENCE AND CORRELATES OF STS

The purpose of this study was twofold: (a) to test the relationship between indirect exposure to trauma (measured with a multidimensional assessment of the exposure, including diversity, volume, frequency, and ratio) and secondary traumatic stress; (b) to investigate the possible correlates of secondary traumatic stress: personal history of trauma, providers' appraisal of the impact of secondary exposure, work characteristics, and professional support.

Methods

Participants and procedure. This study was part of the ongoing SupportNet Project designed to evaluate indirect exposure to trauma, work-related demands and resources, and their impact on job burnout, work engagement, and secondary traumatic stress in military mental health providers. Data were collected by means of an online survey. An e-mail with information about the SupportNet study and a link to the survey was sent to on-post and off-post behavioral health providers working with military patients. The off-post providers (i.e., located in the civilian community) received an invitation to the study through an online newsletter sent by TriWest Healthcare Alliance, an organization that manages health benefits for military patients and their families. The on-post providers (i.e., working within military installations) were contacted by e-mail sent by the director of the Department of Behavioral Health at Evans Army Community Hospital at Fort Carson, CO and by the Psychology Consultant to the U.S. Army Surgeon General.

Of 339 participants who initially consented to the study, 224 (66%) met the inclusion criteria (i.e., working at least one year as a clinical psychologist, counselor, or social worker; providing services for a military population; and being indirectly exposed to trauma through work with patients) and completed the survey. The average age was 48.92 ($SD = 13.04$) years and the average length of work experience was 16.40 ($SD = 10.42$) years. Demographic and work characteristics of the sample are presented in Table 1. The participants were predominantly women (67%), with doctorate (54%) or master's degrees (46%), working full-time (78%) or part-time (22%) as clinical psychologists (45%), counselors (31%) or social workers (23%). Slightly more than half of the sample was serving as on-post (57%) and the rest as off-post (43%) behavioral health providers. The sample was almost equally split between those who did and did not have any military experience (44% and 56%, respectively). One fifth

of the sample (19%) had deployed to a combat zone at least once. They reported utilizing a mixture of different therapeutic approaches with most reporting Cognitive Behavioral Therapy (CBT, 90%), followed by Cognitive Processing Therapy (CPT, 42%), Prolonged Exposure (PE, 30%) and Eye Movement Desensitization and Reprocessing (EMDR, 29%).

Measures. The online questionnaire consisted of several instruments.

Indirect exposure to trauma. The Secondary Trauma Exposure Scale (STES) was developed for the purpose of this study to measure mental health providers' indirect exposure to traumatic events. Similar to the brief instruments designed for screening direct exposure to trauma (Norris, 1990), the STES consists of the list of potentially traumatic events. In the STES, however, participants are not instructed to indicate the traumatic events they personally experienced, but to check the events (answers "Yes" or "No") they were exposed to through their work with patients. The list of 10 events included: natural disasters, transportation accidents, other serious accidents, physical assaults, sexual assaults, other life-threatening crimes, military combat or exposure to a warzone, life-threatening illness or injury, sudden death of someone close, and a global category of "other."

The STES measures four aspects of indirect exposure: diversity, volume, frequency, and ratio. The diversity index is calculated by counting how many types of traumatic events were checked on the list (range 0–10). Volume and frequency of an indirect exposure were measured respectively with two separate questions also referring to the list: "During your professional career, how many of your patients experienced at least one of the above events?" (the response scale "None, 1 or 2, 10 or less, 50 or less, 100 or less, A few hundred, A few thousand" was coded as 0, 2, 10, 50, 100, 500, 1000, respectively); "During your entire professional career, how frequently have you worked with patients who experienced at least one of the above events?"

(scale 1–7: Never; A few days in a year; One day a month; A few days a month; One day a

week; A few days a week; Every day). The ratio of indirect exposure was assessed with two

questions estimating the percent of providers' clients who were traumatized.

> *Appraisal of the impact of indirect exposure*. The appraisal of the impact of being

exposed to the history and details of patients' traumatic events was assessed with 10 items.

Participants were asked to assess how hearing about each checked event in the STES affected

them. The responses are given on a 1 to 7 scale (from "Very Negative" through "Neutral" to

"Very Positive"). The item mean score was calculated as the index of appraisal. The

Chronbach's alpha was .92.

> *Direct exposure to trauma*. To control for providers' direct exposure to trauma, we

asked a question referring to the list of 10 potentially traumatic events included in the STES:

"How many of the types of traumatic events listed above have you personally experienced?"

(scale from 0 to 10).

> *Secondary traumatic stress*. Symptoms of secondary trauma were measured with the

Secondary Traumatic Stress Scale (Bride et al., 2004). This 17-item, self-report instrument

evaluated the frequency of intrusion, avoidance, and arousal symptoms resulting from an indirect

exposure to trauma at work. The list of symptoms corresponds to the B, C, and D diagnostic

criteria for PTSD specified in the *DSM-IV-TR* (APA, 2000). Responses were given on a 1 to 5

scale (from "Never" to "Very Often"). Participants indicated how often each of the symptoms

was experienced in the last month. Scores were obtained by summing the items. Good

psychometric properties of this instrument have been demonstrated in many studies (Bride, 2007;

Bride et al., 2004). The reliability in our study was $\alpha = .79$ for intrusion, $\alpha = .87$ for avoidance, α

$= .84$ for arousal symptoms, and $\alpha = .93$ for the total score.

__Work characteristics and professional support__. Several survey questions were designed to gain knowledge about work content, work-related demands, and resources. We asked about the primary occupational role (clinical psychologist, counselor, psychotherapist, or social worker), therapeutic approaches used in work with clients (CBT, CPT, PE, EMDR), employment status (part-time, full time), years of work experience as a mental health provider, the exact number of hours of individual, and group supervision received monthly, and frequency of professional peer support (scale 1–7: Never; A few days in a year; One day a month; A few days a month; One day a week; A few days a week; Every day). We also assessed participants' perception of their workload in the last month by asking how frequently they were constrained by (1) having too much paperwork and (2) having too many patients (scale 1–5: Less than once per month or never; Once or twice per month; Once or twice per week; Once or twice per day; Several times per day).

__Demographic information__. Socio-demographic information was collected: gender, age, highest level of education, relationship status, military status, and deployment to a combat zone.

Results

Work and exposure characteristics. Table 2 presents means, standard deviations, and actual and potential ranges for the main variables of the study. On average, participants were receiving 2.51 hours of individual clinical supervision and 2.17 hours of group clinical supervision per month. On average, they were receiving peer support by discussing the patients with colleagues on a few days a month (percentage of response categories: "Never" – 1%; "A few days in a year" – 13%; "One day a month" – 16%; "A few days a month" – 27%; "One day a week" – 15%; "A few days a week" – 23%; "Every day" – 5%). Respondents also indicated that they were on average constrained by having too many patients (i.e., once or twice per month)

and more frequently by having too much paperwork (i.e., once or twice per week). All the

providers reported at least one personally experienced traumatic event, with the average number

approximately three (*SD* = 1.84). A similar number of personally experienced traumatic events

was reported among military medical personnel (Maguen et al., 2009).

In terms of secondary exposure, providers indicated that on average, over the course of

their professional career, they treated seven different types of trauma (cf. diversity), worked with

a few hundred traumatized patients (percentage of response categories for volume: "None" - 0%;

"1 or 2" – 1%; "10 or less" – 2%; "50 or less" – 12%; "100 or less" – 18%; "A few hundred" –

54%; "A few thousand" – 13%) and treated traumatized patients for a few days a week

(percentage of response categories for frequency: "Never" – 0%; "A few days in a year" – 0%;

"One day a month" – 2%; "A few days a month" – 6%; "One day a week" – 10%; "A few days a

week" – 38%; "Every day" – 44%). Providers declared that in their professional career about

63% of patients were traumatized (cf. ratio), and 32% experienced military-related traumas. The

appraisal of the impact of this indirect trauma exposure on providers was negative (3.34 on 1-7

scale with 3 meaning "somewhat negative").

Prevalence of secondary traumatic stress. Table 3 presents how many behavioral

health providers met the diagnostic criteria for secondary traumatic stress. The algorithm

proposed by Bride (2007) follows *DSM-IV-TR* recommendations for a diagnosis of PTSD (APA,

2000) and includes criteria B (intrusion or re-experiencing), C (avoidance), and D (arousal) and

their combinations. Criterion A (an indirect or direct exposure to trauma) was met by all

participants as part of the inclusion criteria for the study. According to the algorithm, symptoms

of secondary traumatic stress included in the STSS are endorsed if the given corresponding item

is scored 3 or higher on a 1–5 scale. At least one symptom must be endorsed to meet Criterion

B, three for Criterion C, and two for Criterion D.

Table 3 shows that despite being indirectly exposed to the traumatic history of patients,

33.9% of the participants did not meet any of the B, C, or D criteria for PTSD. However, 19.2%

of providers met all three core criteria for PTSD. The three occupational groups (counselors or

psychotherapists, social workers, and clinical psychologists) did not differ in terms of meeting all

three diagnostic criteria χ^2 (2, $N = 224$) = 1.48, $p = .478$, or in terms of the average total STS

scores, $F(2, 221) = 0.79$, $p = .455$, $\eta^2 = .007$. Different combinations of two of the criteria were

found in 22.8% to 29.5% of the study population. The criterion met most frequently was

intrusion (57.6%), followed by arousal (35.3%) and avoidance (29.9%). Table 4 presents

descriptive statistics for intensity of intrusion, avoidance, and arousal symptoms and for a total

score on the STSS.

Correlates of secondary traumatic stress. Further statistical analyses explored whether

the participants' demographic, exposure- and work-related characteristics were related to

secondary traumatic stress. In the case of the categorical variables a series of one-way ANOVAs

was used to test for secondary traumatic stress differences across gender, relationship status,

profession, education levels, employment, military status, deployment, different types of

therapeutic approaches used in work with patients (CBT, CPT, PE, or EMDR), and type of work

setting (on- versus off-post providers). Descriptive statistics for these variables are presented in

Table 1. None of these characteristics had a significant effect on intensity of secondary

traumatic stress (all Fs < 1.60 and ps > .207).

Correlational analysis (Pearson's r) conducted for continuous variables showed that

several work- and exposure-related factors were associated with secondary traumatic stress. As

shown in Table 6, only one out of five indices of indirect trauma exposure, the ratio of

traumatized clients in professional career, was correlated with secondary traumatic stress.

Providers' personal history of trauma, being constrained by having too many patients, and too

much paperwork were also associated positively with secondary traumatic stress. Finally, the

provider's appraisal of impact of indirect exposure to trauma was negatively correlated with

secondary traumatic stress (i.e., more negative appraisal correlated to higher level of symptoms).

Additionally, a regression analysis was conducted with five significant correlates of STS

entered as predictors of the STS symptoms. The regression equation was significant,

$F(5, 218) = 16.14$, $p < .001$, $R^2 = .27$. Multicollinearity was not a problem in these data

(VIF ≤ 1.33). Overall, the predictors explained 27% of STS variance. Having too many patients

($\beta = .27$, $p < .001$), higher levels of direct exposure to trauma ($\beta = .17$, $p = .004$), and more

negative appraisal of impact of indirect exposure ($\beta = -.33$, $p < .001$) predicted higher frequency

of STS symptoms. The effects of amount of paperwork ($\beta = .04$) and the ratio of traumatized

clients in professional career ($\beta = .05$) were negligible. Study 2 followed up these findings to

compare our prevalence ratings with other samples.

STUDY 2: META-ANALYSIS

Several studies have evaluated the frequencies of secondary traumatic stress across

groups of behavioral health professionals. These studies relied on similar methods but reached

different conclusions in terms of STS symptoms. One possible way to integrate the existing

evidence would be to conduct a systematic review or meta-analysis, which collates all empirical

evidence using systematic procedure of search, extraction, and evaluation of studies to minimize

researchers' biases. Compared to systematic review, meta-analysis accounts for the fact that

analyzed studies may differ in terms of statistical power. Additionally, meta-analysis allows for

statistical estimation of the average symptoms level across the samples (weighted *M*). It also

allows for calculating the confidence intervals, which with the assumed probability level (usually

95%) indicate intervals within which the average level of symptoms for the population should be

included. These reference points might be very useful for diagnostic purposes. The aim of

Study 2 was to compare the mean level of STS in the investigated population with the mean

levels of STS in other populations.

Methods

Descriptive statistics found for behavioral health providers working with the military

were compared to statistics obtained from previous studies in which secondary traumatic stress

was measured with the STSS. Articles cited in Table 4 were identified through searches of

databases (PsychINFO, PILOT, Medline, and ScienceDirect) for peer-reviewed articles

published in English through April 2012. The only keyword used for identification of research

was the name of the scale: Secondary Traumatic Stress Scale. A number of criteria had to be

met in order to be included in the meta-analytic review. Participants had to be indirectly exposed

to trauma through their work. In addition, the article must include information about sample

size, mean values, and standard deviations for each subscale of the STSS, and for the total score.

Of the 27 articles identified and reviewed, 5 met inclusion criteria. Most studies were

excluded because, although they provided a total score for the STSS, they did not provide

appropriate descriptive statistics for intrusion, avoidance, and arousal criteria. Sample size for

individual studies included in the meta-analysis ranged from 89 to 276, and a total of 1,155

participants were included in the meta-analysis.

Results

Table 5 displays the results of meta-analysis. Significant results of heterogeneity test (Cochran's Q) indicated that variation in mean values across studies is due to heterogeneity rather than chance, therefore the random effect meta-analysis method was applied. The majority of variability across the samples was due to between-studies variability ($I^2 > 90\%$), and not due to sampling errors. Across the samples, the 95% CI for mean values of STSS would be [8.53, 10.51] for intrusion, [12.82, 15.31] for avoidance, [9.06, 11.15] for arousal, and [28.81, 37.45] for total STSS score.

Mean values for intrusion, avoidance, arousal, and total score from the SupportNet study were contained in a range of respective confidence intervals calculated in the meta-analysis. This indicates that the severity of secondary traumatic stress symptoms in the SupportNet sample is similar to the severity of these symptoms in other investigated populations. This conclusion remains valid even if the results of the current study are excluded from the meta-analysis.

DISCUSSION

A logical extension of the psychological strain endured by military members who have completed deployments to Iraq and Afghanistan is the presence of STS symptoms in those who care for them. Previous research targeting clinicians working with civilian population showed that among those who were indirectly exposed to traumatic material through work a sizeable percentage (15% - 39%) suffered from secondary traumatic stress (Bride, 2007; Bride, et al., 2009; Bride, et al., 2007; Choi, 2011a; Dominguez-Gomez & Rutledge, 2009; Smith et al., 2011; Quinal, et al., 2009). The present study documents the level of STS in military behavioral health providers. A limited impact of indirect exposure to trauma at work on developing STS symptoms was found in approximately a third of military behavioral health providers, whereas one in five reported meeting all criteria of PTSD due to indirect exposure to trauma. Compared

to rates of current PTSD among veterans (2 -17%; Richardson et al., 2010) or the general

population (3.5%; Kessler et al., 2005) the prevalence observed in the present study is high. It

may be assumed that the performance of different tasks (including those work-related) may be

affected by PTSD symptoms (cf. Wald & Taylor, 2009). As symptoms of STS seem to be a

common problem, military behavioral health providers may need easy access to effective

psychosocial interventions (for overview see Stergiopoulos, Cimo, Cheng, Bonato, & Dewa,

2011), targeting the reduction of STS symptoms and therefore improving their work outcomes.

The meta-analytic results demonstrate similar rates of STS symptoms in the sample of

military behavioral health providers and among other high-risk professions such as emergency

and rescue workers, substance abuse counselors, and agency-based social workers (Argentero &

Setti, 2011; Bride, 2007; Bride et al., 2009). The results of our meta-analysis, indicating similar

levels of STS symptoms across the studies, support the validity of our findings and allow for

cautious generalizations. A lack of differences across workers exposed to secondary trauma and

providing services to various types of clients may indicate that the type of performed work (e.g.,

social work, education, or counseling; working with traumatized families, offenders, military)

may play a negligible role in explaining STS symptomatology. On the other hand, although STS

levels are similar, its symptoms may be explained by different predictors across populations.

Our findings shed light on exposure-related work characteristics which may contribute to

the development of STS. Across the indices of exposure only the ratio of traumatized clients in

professional career was associated with STS among providers working with military patients. So

far, research indicated that the percent of traumatized clients may be a prevalent stressor among

professionals working with traumatized clients (Bride et al., 2009). Voss-Horrell et al. (2011)

suggested that secondary exposure characteristics, such as years of experience in trauma

treatment, total hours per week spent working with trauma patients, and caseload balance, may have a potential to affect clinicians working with veterans of Iraqi and Afghanistan's operations. These suggestions, however, were based on a review of scarce research conducted among providers serving civilian populations. Results of our study suggest that the multi-dimensional structure of secondary exposure at work should be taken into account when predicting STS.

Perhaps the most important correlate to consider refers to perceptions of the negative impact of trauma-related work. The importance of cognitive appraisals of significant environmental stressors (i.e., trauma clinical work) is consistent with the general theories of stress and well-being (Lazarus & Folkman, 1984). Research conducted among workers providing services to civilian population and exposed to secondary trauma indicated that associations between stress appraisal and well-being may be particularly relevant among those with lower personal resources, such as self-efficacy (Prati, Pietrantoni & Cicognani, 2010). Future research should look for individual and organizational resources protecting behavioral health providers who perceive high negative impact of work on their own mental health.

As previously noted, job-related demands (e.g., workload, organizational constraints) and resources (e.g., support from peers or superiors) predict employees' well-being (Cieslak et al., 2007; Van der Doef & Maes, 1999). The present study indicated that a higher number of patients and administrative paperwork constitute important work-related demands, associated with higher levels of STS. Voss-Horrell et al. (2011) listed caseload size and a lack of availability of support as the potentially critical job-related demands, influencing well-being of providers working with traumatized veterans of military operations in Iraq and Afghanistan. Our findings are in line with results reported by Devilly et al. (2009) where job stress levels were found to be particularly important in predicting STS.

Work-related resources such as social support and peer supervision were unrelated to STS levels. This finding is in contrast to other research, suggesting that more support from colleagues and supervisory support were related to lower STS among workers providing services to civilians (Argentero & Setti, 2011; Choi, 2011b; Creamer & Liddle, 2005). Voss-Horrell et al. (2011) also listed peer supervision among potential protective factors, relevant for the mental health of providers working with traumatized veterans of operations in Iraq and Afghanistan. Again, this suggestion was made based on research conducted among providers working with civilian populations. One explanation for the discrepancies between the findings might be the unique nature of the chain-of-command in the supervision of military clinicians. Work stress research highlighted the role of support of managers/superiors in predicting employees' mental health (cf. Cieslak et al., 2007). Clearly, the role of work-related support from different sources (supervisors, co-workers, managers) in predicting STS requires further research.

We found that the greater the number of direct exposure to trauma the higher the reported level of STS. This observation is consistent with previous research, conducted among providers working with civilian clients (Pearlman & MacIan, 1995) and in line with the hypothesized determinants of mental health of providers working with military populations (Voss-Horrell et al., 2011). What remains unclear is how personal trauma history inter-relates with work-based demands, indirect exposure, and resources to influence STS. Future research should investigate whether particular types of trauma, such as childhood abuse (cf. Marcus & Dubi, 2006) may play a particularly salient role and moderate the impact of work-related secondary exposure.

Our study has several limitations. A cross-sectional design and convenience sampling do not allow for any causal conclusions. The measure used to capture direct personal exposure was developed for the study and therefore it has not been previously validated. Although applying

such assessment methods as the Clinical Administered PTSD-Scale (CAPS) could be superior,

an individual clinical assessment was not feasible for the present study. It should be noted that

previous research which measured direct exposure and STS applied even more limited

assessment methods such as "Do you have a trauma history?" (Pearlman & MacIan, 1995).

Future research should utilize a standardized clinical interview approach in order to secure more

accurate assessment of trauma exposure. The present study focused on one negative effect of

indirect trauma exposure (i.e., STS as a set of PTSD-like symptoms), whereas other possible

consequences or conceptualizations, (e.g., compassion fatigue or vicarious traumatization) were

not analyzed. Consequently, the findings are limited to STS. Further longitudinal studies

targeting representative samples of mental health providers serving military men and women are

required.

CONCLUSIONS AND FUTURE DIRECTIONS

Previous research targeting behavioral health providers working with military patients

has been limited (cf. Peterson, Cigrang, & Isler, 2009). Hypothesized risks and resources factors

affecting well-being of behavioral health providers working with military were based on findings

predominantly referring to civilian providers working with civilian clients (Voss-Horrell et al.

2011). Our study is among the first showing empirical evidence for high prevalence of STS

(19.2%) among providers working with the military. Results of meta-analysis contribute to the

literature showing that the rates of STS prevalence are similar across samples of workers

performing different type of duties, in various populations of clients. Further, the present

research highlights the need of multi-dimensional evaluation of secondary exposure, with only

one dimension (ratio, i.e., high percentage of traumatized clients in one's professional career)

emerging as a significant correlate of STS. In line with research conducted among workers

providing services to traumatized civilians we found that personal history of trauma and constraints related to patient load are associated with STS levels.

Further theory-based research is needed in order to evaluate the role of risk and protective factors related to psychological resiliency factors (Maguen et al., 2008) such as self-efficacy (Prati et al., 2010) or support from superiors (Cieslak et al., 2007) in predicting STS. There is a lack of studies investigating how STS interfaces with other critical negative (e.g., burnout) and positive (e.g., posttraumatic growth) outcomes. Such studies will provide a critical insight into mechanisms responsible for the onset and maintenance of mental health problems and thus inform the development of theory- and evidence-based supportive interventions, needed for military behavioral health providers.

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Table 1

Demographic and Work Characteristics of Behavioral Health Providers Participating in the

SupportNet Study

Characteristic	*n*	*%*	Characteristic	*n*	*%*
Gender			Employment		
Male	75	33	Part-time	49	22
Female	149	67	Full-time	175	78
Relationship status			Military experience		
Long-term committed relationship	169	75	No military service	125	56
Not in a relationship	50	22	Active or former military	98	44
Profession			Deployment	43	19
Clinical psychologist	102	45	Therapy: CBT	201	90
Counselors or psychotherapists	70	31	Therapy: CPT	95	42
Social workers	52	23	Therapy: PE	68	30
Education			Therapy: EMDR	64	29
Master's degree	103	46	Work setting		
Doctorate or professional degree	120	54	On-post providers	127	57
			Off-post providers	97	43

Note. N = 224 for total sample. Frequencies may not add up to 224 due to missing data.

Percentages may not sum up to 100% because of missing data or due to rounding.

Table 2

Descriptive Statistics for the Demographics, Work-Related, and Exposure-Related

Characteristics

Variables	*M*	*SD*	Range	
			Actual	Potential
Age	48.92	13.04	28–80	–
Years of work experience	16.40	10.42	1–45	–
Work characteristics and professional support				
Too much paperwork	2.79	1.31	1–5	1–5
Too many patients	2.01	1.23	1–5	1–5
Number of hours of individual clinical supervision or consultation per month	2.51	3.90	0–28	–
Number of hours of group clinical supervision or consultation per month	2.17	3.25	0–20	–
Frequency of peer supervision	4.32	1.49	1–7	1–7
Direct exposure	3.24	1.84	1–9	0–10
Indirect exposure to trauma				
Diversity of exposure	7.41	2.18	1–10	0–10
Volume	423.89	295.49	2–1000	0–1000
Frequency	6.17	0.96	3–7	1–7
Ratio: Percentage of traumatized patients	63.32	25.25	2–100	0–100
Ratio: Percentage of patients describing a graphic military combat experience	32.02	28.54	0–100	0–100
Appraisal of indirect trauma exposure	3.34	0.77	1–6	1–7
Secondary traumatic stress	31.91	10.65	17–66	17–85

Note. Response rates for indices of Volume, Frequency, and Frequency of peer supervision are

provided in the Work and Exposure Characteristics section (see Results for Study 1).

Table 3

Frequency and Percentage of Behavioral Health Providers Meeting Diagnostic Criteria for Secondary Traumatic Stress Criteria Due to an Indirect Trauma Exposure through a Practice with Traumatized Military Patients

Criteria	*n*	%
None criteria met	76	33.9
Criterion B: Intrusion	129	57.6
Criterion C: Avoidance	67	29.9
Criterion D: Arousal	79	35.3
Criteria B and C	53	23.7
Criteria B and D	66	29.5
Criteria C and D	51	22.8
Criteria B, C, and D	43	19.2

Table 4

Comparing Intensity of Intrusion, Avoidance, Arousal, and Total Score of the STSS In the SupportNet Study with Results Obtained in Other Studies

Study	Participants	Intrusion	Avoidance	Arousal	Total score
	(*N*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
SupportNet Study	Behavioral health providers working with military trauma (224)	8.91 (2.96)	13.33 (5.06)	9.68 (3.63)	31.91 (10.65)
Bride (2007)	Social workers (276)	8.18 (3.04)	12.58 (5.00)	8.93 (3.56)	29.69 (10.74)
Bride, Jones, & Macmaster (2007)	Child protective services workers (187)	10.97 (4.07)	15.64 (5.98)	11.58 (4.22)	38.20 (13.38)
Bride, Smith Hatcher, & Humble (2009)	Substance abuse counselors (225)	8.83 (3.28)	13.14 (5.54)	9.27 (4.10)	31.20 (12.30)
Choi (2011a)	Providers for survivors of family or sexual violence (154)	9.10 (2.90)	13.40 (5.00)	9.5 (3.5)	32.07 (10.39)
Smith Hatcher, Bride, Oh, Moultrie King, & Franklin Catrett (2011)	Juvenile justice education workers (89)	10.64 (3.19)	15.73 (4.90)	11.37 (3.79)	37.74 (10.74)

Table 5

Meta-Analysis Results for Severity of Secondary Traumatic Stress Symptoms

Secondary traumatic stress	k	M	Heterogeneity		95% CI for M		Z
			Q	I^2%	Lower Level	Upper Level	
Intrusion	6	9.41	87.84***	94.31	8.63	10.19	23.58***
Avoidance	6	13.93	52.50***	90.48	12.94	14.92	27.49***
Arousal	6	10.03	70.02***	92.86	9,20	10.86	23.76***
Total score	6	32.91	132.98***	96.24	29.51	36.31	18.96***

***$p < .001$, $N = 1,155$

Note. k = number of studies; M = weighted mean value; significant Q values indicate that variation in means across studies is due to heterogeneity of studies rather than chance; I^2% indicates the percentage of the total variability in analyzed studies due to true heterogeneity (i.e., due to between-study variability), a low level of this index would indicate variability due to sampling error; significant Z values indicate that the estimated mean values are different from zero.

Table 6

Correlations between Study Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age	_													
2. Work experience	.77***	_												
3. Too much paperwork	.03	.05	_											
4. Too many patients	-.19**	-.12	.49***	_										
5. Hours of individual clinical supervision or consultation per month	-.34***	-.35***	.07	.07	_									
6. Hours of group clinical supervision or consultation per month	-.28***	-.31***	.12	.11	.51***	_								
7. Frequency of peer supervision	-.25***	-.13	.05	.09	.31***	.32***	_							
8. Direct exposure	.17*	.12	.16*	.09	-.02	.06	.01	_						
9. Indirect exposure: Diversity	.09	.09	-.03	-.08	-.07	.03	.08	.15*	_					
10. Indirect exposure: Volume	.10	.20**	.15*	.14*	-.08	-.11	.15*	.15*	.26***	_				
11. Indirect exposure: Frequency	-.06	-.01	.06	.15*	.11	-.01	.32***	.07	.15*	.40***	_			
12. Indirect exposure: Ratio - percentage of traumatized patients	.04	-.01	.05	.08	.04	.04	.09	.15*	.14*	.27***	.40***	_		
13. Indirect exposure: Ratio - percentage of patients describing a graphic military combat experience	-.29***	-.17*	.02	.27***	.12	-.09	.19**	.05	-.10	.17*	.23***	.30***	_	
14. Appraisal of indirect trauma exposure	-.10	-.04	-.09	-.12	.08	-.06	.15*	-.01	.17**	.20**	.08	-.11	-.10	_
15. Secondary traumatic stress	.00	.02	.23***	.35***	.06	.09	-.01	.21***	-.01	.06	-.08	.14*	.13	-.37***

p < .05. ***p* < .01. ***p* < .001.

A Meta-Analysis of the Relationship Between Job Burnout and Secondary Traumatic Stress Among Workers With Indirect Exposure to Trauma

AQ: au

Roman Cieslak
University of Colorado at Colorado Springs and University of Social Sciences and Humanities

Kotaro Shoji, Allison Douglas, and Erin Melville
University of Colorado at Colorado Springs

Alexandra Luszczynska
University of Colorado at Colorado Springs and University of Social Sciences and Humanities

Charles C. Benight
University of Colorado at Colorado Springs

The study provides a systematic review of the empirical evidence for associations between job burnout and secondary traumatic stress (STS) among professionals working with trauma survivors, indirectly exposed to traumatic material. Differences in the conceptualization and measurement of job burnout and STS were assumed to moderate these associations. A systematic review of literature yielded 41 original studies, analyzing data from a total of 8,256 workers. Meta-analysis indicated that associations between job burnout and STS were strong (weighted $r = .69$). Studies applying measures developed within the compassion fatigue framework (one of the conceptualizations of job burnout and STS) showed significantly stronger relationships between job burnout and STS, indicating a substantial overlap between measures (weighted $r = .74$; 55% of shared variance). Research applying other frameworks and measures of job burnout (i.e., stressing the role of emotional exhaustion) and STS (i.e., focusing on symptoms resembling posttraumatic stress disorder or a cognitive shift specific for vicarious trauma) showed weaker, although still substantial associations (weighted $r = .58$; 34% of shared variance). Significantly stronger associations between job burnout and STS were found for: (a) studies conducted in the United States compared to other countries; (b) studies using English-language versions of the questionnaires compared to other-language versions, and (c) research in predominantly female samples. The results suggest that, due to high correlations between job burnout and STS, there is a substantial likelihood that a professional exposed to secondary trauma would report similar levels of job burnout and STS, particularly if job burnout and STS were measured within the framework of compassion fatigue.

Keywords: secondary trauma, secondary exposure, secondary traumatic stress, job burnout, meta-analysis, compassion fatigue

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The concept of job burnout was originally developed to assess negative consequences of work-related exposure to a broad range of stressful situations experienced by human services employees (Freudenberger, 1974; Maslach, 1976; Maslach, Schaufeli, & Leiter, 2001). In particular, the provision of care to traumatized populations may be infused with high levels of burnout among mental health care providers and mental health care administrators (Newell & MacNeil, 2011). Burnout among health care providers

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relates to their well-being, the quality of life of their patients, and caring effectiveness (Cheung & Chow, 2011).

Recent research on mental health providers has extended the focus beyond job burnout to investigate the consequences of exposure to specific stressors, such as contact with people who have experienced traumatic events, exposure to graphic trauma content (reported by the survivor), or exposure to people's cruelty to one another (Pearlman & Saakvitne, 1995). These job-related

Roman Cieslak, Trauma, Health, and Hazards Center, University of Colorado at Colorado Springs, and Department of Psychology, University of Social Sciences and Humanities, Warsaw, Poland; Kotaro Shoji, Trauma, Health, and Hazards Center, University of Colorado at Colorado Springs; Allison Douglas and Erin Melville, Department of Psychology, University of Colorado at Colorado Springs; Aleksandra Luszczynska, Trauma, Health, and Hazards Center, University of Colorado at Colorado Springs, and Department of Psychology, University of Social Sciences and Humanities, Wroclaw, Poland; Charles C. Benight, Trauma, Health, and Hazards Center and Department of Psychology, University of Colorado at Colorado Springs.

stressors, specific to human service professionals working with trauma victims or survivors, have been labeled with several terms, such as *secondary exposure* or *indirect exposure to trauma*.

Professionals exposed to trauma indirectly, through their work, may suffer from consequences or symptoms unique to this occupational group, compared to other occupations (Beck, 2011). These specific consequences of indirect trauma exposure have been conceptualized as secondary or vicarious traumatization (McCann & Pearlman, 1990), secondary posttraumatic stress disorder (PTSD; Bride, Robinson, Yegidis, & Figley, 2004), and compassion fatigue (Figley, 2002). Significant elevation of symptoms of compassion fatigue may be expected among mental health providers, including those working in the public sector setting (Newell & MacNeil, 2011).

AQ: 3   Secondary trauma or secondary PTSD may occur due to work-related indirect exposure and in the context of family-related indirect exposure. Besides human services workers, populations at risk for indirect exposure include family members or intimate partners of survivors of various types of trauma, for example, veterans or active duty soldiers, motor vehicle trauma survivors, or abuse survivors (cf. Lambert, Engh, Hasbun, & Holzer, 2012). The present study focused on consequences of work-related exposure and, therefore, our analyses excluded family-related indirect exposure.

The ongoing discussion about the constructs of burnout, compassion fatigue, and secondary traumatization (Jenkins & Baird, 2002) has shown that although there are subtle differences between them, they are also partially overlapping. So far, the debate has been dominated by narrative analyses of these differences with limited empirical evaluation (R. E. Adams, Boscarino, & Figley, 2006; Jenkins & Baird, 2002; Sabo, 2011; Thomas & Wilson, 2004). In contrast, comprehensive analyses empirically testing similarities and differences between respective constructs, and thus providing overarching conclusions across the recent research, are clearly needed. To fill this void, our meta-analysis investigated the relationships among job burnout and psychosocial consequences of a secondary exposure to trauma (i.e., compassion fatigue, secondary PTSD, or vicarious trauma; collectively, secondary traumatic stress [STS]) in professionals working with trauma survivors.

Job Burnout

Job burnout may be defined as a prolonged three-dimensional response to job stressors, encompassing exhaustion, cynicism, and inefficacy (Maslach et al., 2001). In contrast to the proposal of Maslach et al. (2001), three related approaches suggest that job burnout might be reduced to a single common experience: exhaustion. The first of these approaches defines as physical, emotional, and mental exhaustion (Malach-Pines, 2005). According to the second conceptualization, burnout concerns physical and psychological fatigue and exhaustion (Kristensen, Borritz, Villadsen, & Christensen, 2005), measured in a domain-specific context. The third approach defines burnout as physical, emotional energy, and cognitive exhaustion, which may result in depletion of coping resources (Shirom & Melamed, 2006).

Not all contemporary theorists, however, have landed on the one-dimensional exhaustion frame for burnout. A two-dimensional job burnout framework proposed by Demerouti, Bakker, Varda-

kou, and Kantas (2003) focuses on exhaustion and disengagement (i.e., distancing oneself from work and negative attitude toward the work-related objects and tasks). Demerouti et al. (2003) proposed a relatively broad conceptualization of burnout, defined as long-term consequences of prolonged exposure to job demands. Obviously, there is a potential overlap between cynicism and negative attitude toward work bringing this approach closer to that of Maslach et al. (2001).

The variety of conceptualizations and operationalizations of the job burnout construct raises many concerns. Scientific advancement relies on agreed on definitions and measurement. In the case of job burnout, there appears to be consensus only related to the exhaustion component. Our meta-analytic review, including moderator analyses, provides critical information to clarify some of these conceptual challenges. The area of STS also falls victim to construct definition confusion.

Secondary Traumatic Stress

In the present study, we use the umbrella term *secondary traumatic stress* to discuss such effects of secondary exposure as secondary PTSD (Bride et al., 2004), vicarious traumatization (McCann & Pearlman, 1990), and the STS aspect of compassion fatigue (Figley, 2002).

STS (also called secondary PTSD) is usually conceptualized as reactions resembling PTSD, and thus includes symptoms that are parallel to those observed in people directly exposed to trauma (Bride et al., 2004). There are three clusters of symptoms: intrusive reexperiencing of the traumatic material, avoidance of trauma triggers and emotions, and increased physical arousal (Bride et al., 2004). These consequences are assumed to result from indirect exposure to trauma among human services providers whose clients or patients suffered from primary exposure.

The concept of vicarious trauma focuses on cognitive effects of indirect exposure (Pearlman, 1996). A negative shift in worldview occurs as a result of an empathetic engagement with clients' or patients' traumatic material (Pearlman, 1996). The symptoms of vicarious trauma include disturbances in the professional's cognitions in five areas (i.e., safety, trust, esteem, intimacy, and control), in reference to oneself and others (Pearlman & Saakvitne, 1995).

Another theoretical framework uses the term *compassion fatigue* to explain the consequences of secondary exposure to trauma at work (Figley & Kleber, 1995). Compassion fatigue is defined as a reduced empathic capacity or client interest manifested through behavioral and emotional reactions from exposure to traumatizing experiences of others (R. E. Adams et al., 2006). Initially, the broad definition of compassion fatigue (Figley & Kleber, 1995) focused on any emotional duress experienced by persons having close contact with a trauma survivor. More recently, aspects of burnout were additionally incorporated into the compassion fatigue concept capturing the element of energy depletion (Stamm, 2010).

Of import, the definition of job burnout included in compassion fatigue differs from the more common approaches reviewed earlier that focus more on exhaustion (e.g., Demerouti et al., 2003; Maslach et al., 2001). Within the compassion fatigue framework, burnout is described as being "associated with feelings of hopelessness and difficulties in dealing with work or in doing your job effectively" (Stamm, 2010, p. 13). It is not completely clear

whether the resulting construct of compassion fatigue is unitary or composed of two distinct dimensions (Figley & Stamm, 1996; Jenkins & Baird, 2002), although some evidence has suggested a two-dimension structure (R. E. Adams et al., 2006). Compassion fatigue is measured with the Professional Quality of Life (Pro-QOL; Stamm, 2010). Compared to other job burnout scales, the burnout items of the ProQOL are not focused on exhaustion symptoms, but, instead, refer to lack of well-being, negative attitudes toward work, work overload, or a lack of self-acceptance.

Burnout and other consequences of secondary exposure to trauma (e.g., secondary PTSD and compassion fatigue) should be moderately related, because their theoretical frameworks each have a different emphasis. Besides exposure to clients' reports of their traumatic experience, burnout is related to workplace structural strains and chronic organizational issues (Lee, Lim, Yang, & Lee, 2011). PTSD-like symptoms of secondary PTSD and vicarious traumatization are conceptually linked only to those workplace factors that refer to indirect exposure to trauma content (Jenkins & Baird, 2002; Schauben & Frazier, 1995). In contrast, compassion fatigue refers to a broad range of emotional or cognitive consequences of secondary exposure. We believe that differences in defining and measuring the effects of indirect traumatization may be crucial for testing the relationship between job burnout and other consequences of secondary exposure to trauma.

Collectively, the research on burnout and negative consequences related to secondary exposure to trauma suffers from definitional and measurement challenges. Understanding possible moderators, such as culture and gender, may offer important insights.

The Role of Culture, Gender, and the Type of Work-Related Exposure to Trauma

Professionals from different countries performing the same job may differ in job burnout. For example, Japanese nurses reported lower levels of personal accomplishment and higher levels of emotional exhaustion and depersonalization compared to nurses from the United States, Canada, the United Kingdom, Germany, and New Zealand, with Russian and Armenian nurses reporting the lowest levels of job burnout (Poghosyan, Aiken, & Sloane, 2009). A European study showed that the highest percentages of family doctors with job burnout were identified in the United Kingdom, Italy, and Greece (Soler et al., 2008). Professionals from Fiji or Brazil may suffer from higher levels of job burnout than professionals in Israel, France, Germany, or China (Perrewé et al., 2002).

The concepts of job burnout and compassion fatigue were developed in the United States, and a large proportion of studies investigating the associations between these constructs were conducted in North America. However, a growing number of studies have discussed data collected in other countries (Thoresen, Tønnessen, Lindgaard, Andreassen, & Weisæth, 2009). Trauma researchers have suggested that culture is a critical factor to consider (Marshall & Suh, 2003). The sociocultural context may determine the outcomes of exposure in several ways, such as shaping emotional experiences and emotional processing (Bracken, 2001; Marshall & Suh, 2003). Furthermore, critical determinants of developing the consequences of secondary exposure to trauma, such as existing policies, social resources, and organizational characteristics (Voss Horrell, Holohan, Didion, & Vance, 2011), are likely to vary across countries. Thus, our research investigated the moder-

ating role of cultural context (defined as the country of data collection) in the relationship between burnout and other consequences of indirect trauma exposure.

Gender is also important to consider. Female professionals are likely to report higher levels of aspects of burnout referring to the depletion of emotional reserves (Watts & Robertson, 2011) or higher levels of compassion fatigue (Sprang, Clark, & Whitt-Woosley, 2007). The associations between gender and PTSD-like symptoms among professionals with secondary exposure are unclear (Sprang, Craig, & Clark, 2011). Furthermore, the effects of gender on burnout may be higher in the United States than in European countries, where there are smaller reported differences in burnout levels among men and women (Purvanova & Muros, 2010). It remains unknown, however, whether gender may moderate the associations between job burnout and STS.

Some occupations are characterized by a low likelihood of direct exposure to work-related trauma (e.g., therapists), in contrast to professionals who work at the epicenter of trauma (e.g., paramedics, rescue workers) and thus may be also directly exposed (Argentero & Setti, 2011; Halpern, Maunder, Schwartz, & Gurevich, 2011). Being a member of an occupational group with an increased likelihood of both direct and indirect exposure to work-related trauma may be an important determinant of STS and burnout (Palm, Polusny, & Follette, 2004). The present study investigated the moderating effect of the type of work-related trauma exposure, with the type of occupation as the indicator of the exposure.

Aims

Although research evidence for the relationships between job burnout and other consequences of indirect trauma exposure (i.e., PTSD-like symptoms, compassion fatigue, vicarious traumatization) among workers exposed to secondary trauma is accumulating, the overarching synthesis of these relationships is missing. Systematic review and meta-analytic strategies offer an option for evaluating the available literature. This study aimed at systematically reviewing and meta-analyzing the strength of associations between job burnout and other psychosocial consequences of work-related indirect exposure to trauma in professionals working with trauma survivors. It was hypothesized that these associations may be moderated by: (a) the type of measurement, (b) the conceptualization of job burnout and STS, (c) (d) gender, and (e) the types of occupations involving primary and secondary exposure, compared to types of occupations involving only secondary exposure. To evaluate cultural context, we explored differences between the findings obtained in the United States and other countries, as well as the differences in findings obtained for English-language measures versus other-language measures.

Method

Literature Search

A systematic database search of studies on STS and job burnout was conducted for independent studies available before 2012. The search included the following databases: PILOTS, ScienceDirect, Scopus, and Web of Knowledge. Combinations of the keywords related to *job burnout* (*burnout* or *burn-out*) and *secondary trau-*

matic stress (*trauma*[*], *posttrauma*[*]) were used, with asterisks indicating that a keyword may consist of the stem and any suffix (e.g., *traumatic*). To ensure that various concepts and terms referring to STS were included, we also used such keywords as *compassion fatigue* and *PTSD*. Manual searches of the reference lists were conducted. If the original article did not provide all details essential for meta-analyses (e.g., reliability, correlation coefficients), the authors of original studies were asked to provide respective information. To minimize a possible bias, at least two of the authors (K. S., R. C., A. D., or E. M.) were involved at all stages of data extraction, coding, synthesis, and analysis. The Cochrane systematic review methods were applied (Higgins & Green, 2008).

Inclusion Criteria, Exclusion Criteria, and Data Abstraction

The following inclusion criteria were implemented: (a) STS and job burnout were measured at some time point in the original study; (b) the relationship between STS and job burnout was assessed, or authors provided appropriate statistics on request; (c) articles reported statistics that could be converted into Pearson's coefficient (e.g., t test, F test, χ^2, z test); (d) original studies enrolled workers performing job tasks involving contact with traumatized clients/patients or traumatic material. English-language publication restriction was applied (although the measurement itself could be in a non-English language). Dissertations and book chapters were excluded. Studies applying qualitative methods, narrative reviews, and research on nonworkers (e.g., student samples) were excluded. When two or more studies used the same sample, only one publication was included. Details of the selection process are presented in Figure 1. The initial search resulted in 337 articles. The selection processes resulted in 45 studies meeting all inclusion criteria. However, four of those studies were excluded from further analysis, because they were identified as outliers, with z scores greater than 10 or less than -10 (Alkema, Linton, & Davies, 2008; Backholm & Björkqvist, 2010; Lauvrud, Nonstad, & Palmstierna, 2009; Maunder et al., 2006). Thus, 41 original studies were analyzed (see Table 1).

Descriptive data (including country where a study was conducted, sample size, participants' gender and occupations, measurement, and design) were extracted and verified by two of the authors. Relevant statistics, including reliability coefficient, and measures of association (or statistics allowing for computing these associations) were also retrieved. Any disagreement in the processes of data extraction was resolved by a consensus method.

Coding

Two main categories of negative consequences of secondary exposure to trauma were analyzed. The first main category, called STS, was defined as negative emotional or cognitive consequences of indirect exposure to trauma, such as (a) PTSD-like symptoms measured by the Secondary Trauma Stress Scale (Bride et al., 2004), the Impact of Event Scale (Horowitz, Wilner, & Alvarez, 1979), or the Impact of Event Scale–Revised (Weiss & Marmar, 1997); (b) vicarious trauma—a cognitive shift in worldview, defined by Pearlman (1996) and measured by the Traumatic Stress
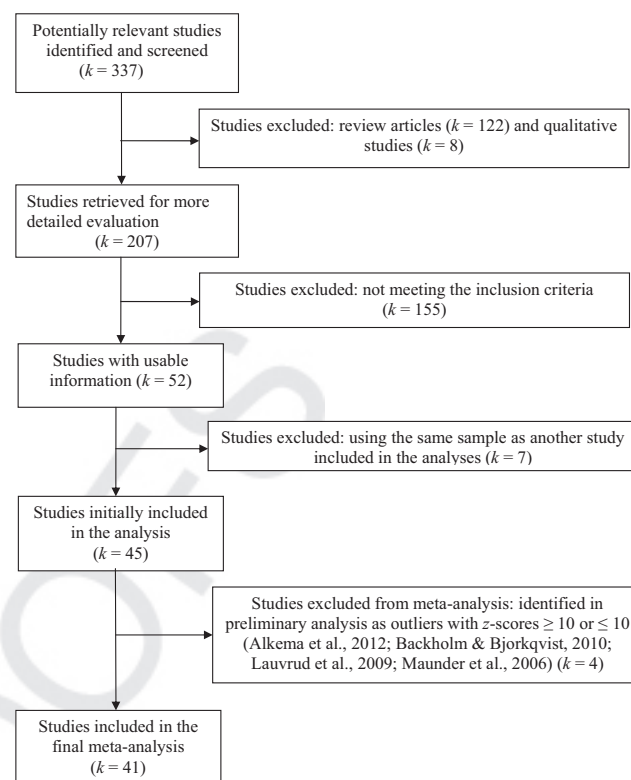

Figure 1. Selection of studies for the meta-analysis.   AQ: 9

Institute Belief Scale (Pearlman, 1996); or (c) an aspect of compassion fatigue, defined by Figley and coworkers (e.g., Figley & Stamm, 1996) and measured by the Secondary Traumatic Stress subscale of the ProQOL (Stamm, 2000), the Compassion Satisfaction and Fatigue Test (CSFT; cf. Figley & Stamm, 1996), the Compassion Fatigue Questionnaire (CFQ; Figley & Kleber, 1995), or the Compassion Fatigue Scale–Revised (CFS-R; R. E. Adams et al., 2006).

Job burnout, the second key category analyzed, was defined as consequences of work related-stress focusing on: (a) the emotional exhaustion component of job burnout, as measured by the Maslach Burnout Inventory (MBI; Maslach, Jackson, & Leiter, 1997), the Oldenburg Burnout Inventory (OLBI; Halbesleben & Demerouti, 2005), the Rescue Worker Burnout Questionnaire (cf. Musa & Hamid, 2008), the Burnout Measure (Malach-Pines, 2005), or the Copenhagen Burnout Inventory (Kristensen et al., 2005); or (b) a concept derived from the compassion fatigue framework and broadly defined by Figley and coworkers (e.g., Figley & Stamm, 1996) as referring to lack of well-being, negative attitudes toward work, work overload, or a lack of self-acceptance, measured by the Job Burnout subscales of the ProQOL (Stamm, 2010), the CSFT (cf. Figley & Stamm, 1996), the CFQ (Figley & Kleber, 1995), or the CFS-R (R. E. Adams et al., 2006).

The moderating factors, referring to the measurement, theoretical framework, cultural factors (i.e., country, language), and gender, were combined into the following categories: (a) the type of measurement used for STS assessment (measures of cognitive shift or PTSD-like symptoms vs. measures of compassion fatigue); (b) the type of assessment of job burnout (the ProQOL Burnout

Table 1

AQ: 7 *Summary of the Studies Included in the Meta-Analysis*

Study (first author, publication year)	N (% men)	Occupation	Study design	STS measure (α)	Job burnout measure (α)	Country	r
K. B. Adams (2001)	185 (18)	Clinical social workers	Cross-sectional	TSI Belief Scale (.93)	MBI (.75, .78, .90)	United States	.494
R. E. Adams (2006)	236 (20)	Social workers	Cross-sectional	CFS-R (.80)	CFS-R (.90)	United States	.642
Argentero (2011)	781[a] (58)	Rescue workers	Cross-sectional	STSS (.82)[a]	MBI (.75, .81, .86)	Italy	.751[a]
Ben-Porat (2011)	214[a] (15)	Social workers	Cross-sectional	STSS (.88)[a]	Burnout Measure (.92)[a]	Israel	.878[a]
Berger (2011)	80 (0)	Well baby clinic nurses	Longitudinal	ProQOL (.77–.79)	ProQOL (.77–.79)	Israel	.505[a]
Birck (2002)	25 (40)	Professionals at treatment center for torture victims	Cross-sectional	CSFT (.87–.90)	CSFT (.87–.90)	Germany	.881
Burtson (2010)	126 (12)	Nurses	Cross-sectional	ProQOL (.81)	ProQOL (.75)	United States	.795
Carmel (2009)	106 (47)	Therapists	Cross-sectional	ProQOL (.81)	ProQOL (.79)	United States	.825
Chang (2011)	102 (100)	Soldiers	Cross-sectional	ProQOL (.68)	ProQOL (.65)	China	.827
Circenis (2011)	129 (NA)	Nurses	Cross-sectional	ProQOL (.81)[b]	MBI (.71, .79, .90)[b]	Latvia	.719
Cohen (2006)	37 (NA)	Social workers	Cross-sectional	CFQ (.80)	CFQ (.84)	Israel	.720
Collins (2003)	13 (46)	Health care workers	Longitudinal	CSFT (.80)	CSFT (.86)	Ireland	.941
Conrad (2006)	355[a] (10)	Child protection workers	Cross-sectional	CSFT (.84)	CSFT (.84)	United States	.842[a]
Craig (2010)	532 (34)	Trauma therapists	Cross-sectional	ProQOL (.81)	ProQOL (.73)	United States	.663
Devilly (2009)	150 (29)	Mental health professionals	Cross-sectional	STSS (.93)	CBI (.85, .86, .87)	Australia	.625
Eastwood (2008)	57 (25)	Childcare workers	Cross-sectional	ProQOL (.80)	ProQOL (.72)	United States	.771
Flannelly (2005)	149 (54)	Chaplains	Cross-sectional	ProQOL (.87)	ProQOL (.83)	United States	.777
Galek (2011)	331 (55)	Chaplains	Cross-sectional	CSFT (.83)	CSFT (.85)	Canada, United States	.190
Gibbons (2011)	62 (NA)	Social workers	Cross-sectional	ProQOL (.81)[b]	ProQOL (.75)[b]	England	.616
Halpern (2011)	189 (62)	Ambulance workers	Cross-sectional	IES-R (.91)	MBI (.83)[a]	Canada	.454[a]
Hatcher (2010)	50 (29)	Clinicians for sexual offenders	Cross-sectional	ProQOL (.81)[b]	ProQOL (.75)[b]	Australia	.648[a]
Jenkins (2002)	99 (4)	Counselors	Cross-sectional	CSFT (.84)	MBI (.81, .91, .92)	United States	.435
Kadambi (2004)	211 (16)	Therapists	Cross-sectional	IES (.88)[b]	MBI (.71, .79, .90)[b]	Canada, United States	.326
Killian (2008)	104 (21)	Therapists	Cross-sectional	ProQOL (.86)[a]	MBI (.88)[a]	United States	.690[a]
Kraus (2005)	90 (43)	Mental health professionals	Cross-sectional	CSFT (.85)	CSFT (.80)	United States	.788
LaFauci Schutt (2011)	184 (65)	Emergency management professionals	Cross-sectional	PCL-C (.94)	ProQOL (.73)	United States	.676
Lawson (2011)	506 (21)	Counselors	Cross-sectional	ProQOL (.80)	ProQOL (.78)	United States	.776[a]
Meadors (2009–2010)	167 (14)	Pediatric health care providers	Cross-sectional	STSS (.91)	ProQOL (.66)	United States	.813
Mitani (2006)	243 (97)	Firefighters	Cross-sectional	IES-R (.94)[b]	MBI (.81, .85, .87)[b]	Japan	.396
Musa (2008)	53 (49)	Aid workers	Cross-sectional	ProQOL (.87)	RWBQ (.73)	Sudan	.602
Perez (2010)	28 (75)	Law enforcement investigators	Cross-sectional	STSS (.97)	MBI (.69, .85, .90)	United States	.745
Perron (2006)	59 (10)	Forensic interviewers	Cross-sectional	STSS (.93)[b]	OLBI (.80)[b]	United States	.643
Pietrantoni (2008)	961 (72)	First responders	Cross-sectional	ProQOL (.80)	ProQOL (.86)	Italy	.687
Potter (2010)	154 (NA)	Oncology health care providers	Cross-sectional	ProQOL (.80)	ProQOL (.72)	United States	.741[a]
Prati (2010)	569 (78)	Rescue workers	Cross-sectional	ProQOL (.71)	ProQOL (.80)	Italy	.638
Robins (2009)	314 (18)	Child health care providers	Cross-sectional	CSFT (.84–.90)	CSFT (.84–.90)	United States	.756
Severn (2012)	82 (NA)	Audiologists	Cross-sectional	ProQOL (.81)	ProQOL (.69)	New Zealand	.831
Simon (2005)	21 (5)	Oncology social workers	Cross-sectional	CSFT (.87)	CSFT (.90)	United States	.531
van der Ploeg et al. (2003)	84 (68)	Forensic doctors	Cross-sectional	IES (.92)	MBI (.79, .80, .86)	Netherlands	.256
van der Ploeg & Kleber (2003)	123 (86)	Ambulance personnel	Longitudinal	IES (.92)	MBI (.70, .76, .86)	Netherlands	.323
Weiniger (2006)	185[a] (79)	Surgical physicians	Cross-sectional	PSS-SR (.68)[a]	MBI (.36, .44, .72)[a]	Israel	.623[a]

Note. STS = secondary traumatic stress; CFS-R = Compassion Fatigue Scale–Revised; TSI Belief Scale = Traumatic Stress Institute Belief Scale; MBI = Maslach Burnout Inventory; STSS = Secondary Traumatic Stress Scale; ProQOL = Professional Quality of Life Scale; CSFT = Compassion Satisfaction and Fatigue Test; NA = not available; CFQ = Compassion Fatigue Questionnaire; CBI = Copenhagen Burnout Inventory; IES-R = Impact of Event Scale–Revised; IES = Impact of Event Scale; RWBQ = Rescue Worker Burnout Questionnaire; OLBI = Oldenburg Burnout Inventory; PCL-C = Posttraumatic Stress Disorder Checklist–Civilian Version; PSS-SR = PTSD Symptom Scale–Self-Report.
[a] Information not reported in articles, but provided on the authors' request. [b] Information not reported in articles, therefore, drawn from another study.

subscale vs. other job burnout instruments, such as the MBI and the OLBI, which have clearly defined emotional exhaustion as a key component); (c) the theoretical framework (the compassion fatigue approach vs. other approaches to job burnout and STS), (d) the country where the study was conducted (the United States vs. other countries), (e) the continent where the study was conducted (North America vs. others), (f) the measurement language (English or others), (g) gender (predominantly male sample consisting of at least 75% men vs. predominantly female sample consisting of at least 75% women), (h) occupations with higher likelihood of both direct and indirect work-related exposure (rescue/emergency workers, nurses, social workers working with victims of missile attacks, chaplains working with victims of September 11, ambulance workers, pediatric care workers, firefighters, interna-

tional aid workers, first responders, forensic doctors, and surgical physicians) and occupations that may involve only indirect work-related trauma exposure (therapists, child protection workers, child care workers, chaplains, social workers, law enforcement exposed to disturbing media images, and forensic interviewers of abused children). In some cases, the same occupation groups (social workers and chaplains) were classified into different categories, depending on professional tasks described in original studies.

Data Analysis

The statistical analysis followed the procedure described by Hunter and Schmidt (2004). Attenuation due to the measurement error was corrected. The cumulative effect size was computed using the random-effect model method (Field & Gillett, 2010). The overall effect sizes, heterogeneity, and effect of the moderators (i.e., measurement, theoretical framework, country/continent, language, and gender) on the relationship between STS and job burnout were examined using Comprehensive Meta-Analysis software (Borenstein, Hedges, Higgins, & Rothstein, 2005). All analyses were sufficiently powered (above .80).

Pearson's correlation was used as the effect size indicator. When the original study provided multiple Pearson's correlations between STS and job burnout (e.g., for separate subscales), a mean Pearson's correlation was calculated (Hunter & Schmidt, 2004). When several measures of STS were applied in the original study, a measure other than a ProQOL subscale was used to estimate Pearson's coefficient for STS–job burnout association. The direction of a correlation involving the MBI Personal Accomplishment subscale was reversed to create positive associations between these subscales. If the original study provided alphas for subscales only, a mean Cronbach's alpha for a total score was calculated. When no Cronbach's alpha was available, it was obtained from original psychometric studies. Robustness of the calculated effect size against the effect of unpublished null results was assessed using the fail-safe N test (Rosenthal, 1979). To address this file drawer problem, the number of unpublished studies that were necessary to produce a nonsignificant result was calculated.

Results

Description of Analyzed Material

Table 1 displays information about samples, procedures, and measurement applied in 41 original studies. Overall, data from 8,256 workers were analyzed. Sample sizes varied from 13–961 participants, with an average of 198.63 ($SD = 205.48$) and median of 129. The average sample consisted of 59.03% women ($SD = 28.35$), with a majority of studies (82.93%; $k = 34$) targeting mixed-gender samples. Only two studies were homogeneous in terms of gender ($k = 1$, 100% male participants; $k = 1$, 100% female participants). Gender frequencies were missing in five studies. Data were collected in various professional groups such as therapists, mental health professionals (including social workers), and counselors (36.58%; $k = 15$); emergency, ambulance, or rescue workers (12.20%; $k = 5$); child care workers and child health care providers (9.76%; $k = 4$); nurses (7.32%; $k = 3$);

forensic specialists (4.88%; $k = 2$); chaplains (4.88%; $k = 2$); and other noncategorized professionals (24.39%; $k = 10$).

Almost half (46.34%; $k = 19$) of the original research was conducted in the United States; 22 studies (53.66%) took place in North America. Four studies (9.76%) were conducted in Israel, three in Italy (7.32%), two in Australia (4.88%), and two in the Netherlands (4.88%). There were also two multicountry studies (4.88%) conducted both in Canada and the United States. Three studies (7.32%) took place in Africa or Asia. An English-language version of the questionnaires was applied in 65.85% ($k = 27$) of the studies.

The most popular measures used to assess STS stem from the compassion fatigue framework (Figley & Stamm, 1996). These ProQOL-related measures were used in 65.85% of studies ($k = 27$) and among 5,343 respondents (64.72% of the total sample). The most popular questionnaires used to assess job burnout also stem from the compassion fatigue approach to job burnout (i.e., ProQOL-related measures). They were applied in 60.98% of studies ($k = 25$), with 5,409 (65.51% of the total sample) professionals completing respective measures. Overall, ProQOL was used in 34.15% of studies ($k = 14$) to assess both STS and burnout constructs.

Associations Between STS and Job Burnout

The main research question dealt with the associations between STS and job burnout. The meta-analysis results conducted from 41 original studies indicated that the average association between these two variables was positive and the effect size was large (weighted $r = .69$; see Table 2). The coefficient of determination **T2** (r^2) was .48. The analysis of the fail-safe N showed that 10,603 studies with null results were needed to produce a nonsignificant association between STS and job burnout. The following analyses tested the moderating role of the measurement, the theoretical framework, the country, the continent, the language of data collection, gender of professionals taking part in the studies, and the type of occupation (likely to be directly and indirectly exposed at work compared to those who are likely to be only indirectly exposed at work).

Measurement of STS as the moderator. The original captured studies were divided into two categories on the basis of the type of measurement used to assess STS: (a) PTSD-like symptoms or (b) a measurement referring to compassion fatigue, based on a broader conceptualization of STS proposed by Figley and colleagues (cf. Figley & Stamm, 1996; R. E. Adams et al., 2006). The results of the moderator analysis showed that the effect sizes of the relationship between STS and job burnout were dependent on the type of STS assessment, with ProQOL-related measures having a stronger association ($r^2 = .53$) than measures assessing PTSD-like symptoms ($r^2 = .37$; see Table 2).

Measurement of job burnout as the moderator. The original studies were divided into two categories on the basis of the type of job burnout measurement used in the studies: (a) the measures stressing the role of exhaustion and (b) the subscales of ProQOL and related measures, based on a broader burnout concept, proposed by Figley and coworkers (cf. Figley & Stamm, 1996). The results showed that the relationship between STS and job burnout was moderated by the type of job burnout assessment, with ProQOL-related measures producing a significantly stronger

Table 2

Results of Meta-Analysis of the Relationship Between Job Burnout and Secondary Traumatic Stress: Overall and Moderator Effects

Measures	r[a]	r range[b]	r 95% CI[c]	N	k[d]	Q[e]	I^2 (%)[f]	Fail-safe N[g]	t[h]
Overall effect	.691	.252–.941	[.647, .731]	8,256	41	478.49*	91.64	10,603	—
Moderator effects									
Measurement									
STS measure									39.96**
ProQOL or related	.729	.435–.941	[.693, .762]	5,343	27	153.94*	83.11	14,138	
STS as PTSD-like symptoms	.608	.252–.878	[.483, .709]	2,913	14	287.43*	95.48	4,829	
Job burnout measure									
ProQOL-related vs. other measures									52.33**
ProQOL or related	.744	.505–.941	[.710, .775]	5,409	25	142.39*	83.15	14,163	
Other	.589	.252–.878	[.471, .687]	2,847	16	273.58*	94.52	4,817	
ProQOL-related vs. MBI									70.81**
ProQOL or related	.744	.505–.941	[.710, .775]	5,409	25	142.39*	83.15	14,163	
MBI	.532	.252–.751	[.397, .645]	2,371	12	177.69*	93.81	2,358	
ProQOL-related vs. other burnout measures (excluding MBI or ProQOL-related)									3.18*
ProQOL or related	.744	.505–.941	[.710, .775]	5,409	25	142.39*	83.15	14,163	
Other burnout measures (excluding MBI)	.731	.602–.878	[.527, .856]	476	4	37.68*	92.04	431	
MBI vs. other burnout measures (excluding MBI or ProQOL-related)									22.01**
MBI	.532	.252–.751	[.397, .645]	2,371	12	177.69*	93.81	2,358	
Other burnout measures (excluding MBI or ProQOL-related)	.731	.602–.878	[.527, .856]	476	4	37.68*	92.04	431	
Framework applied									
Compassion fatigue vs. other approaches									51.18**
Only compassion fatigue framework	.744	.505–.941	[.707, .776]	4,958	23	132.03*	83.34	9,879	
No measure from the compassion fatigue framework	.578	.252–.878	[.426, .699]	2,462	12	261.60*	95.80	3,029	
Compassion fatigue vs. mixed approach									44.69**
Only compassion fatigue framework	.744	.505–.941	[.707, .776]	4,958	23	132.03*	83.34	9,879	
At least one measure from other framework	.612	.252–878	[.509, .697]	3,298	18	299.43*	94.32	7,033	
Cultural factors									
Country									18.00**
United States	.725	.435–.842	[.678, .767]	3,572	19	129.17*	86.07	2,698	
Other countries	.675	.256–.941	[.604, .736]	4,132	20	245.87*	92.27	10,483	
Continent									3.79**
North America (United States and Canada)	.697	.252–.842	[.636, .748]	4,313	22	252.03*	91.67	5,846	
Countries from other continents	.685	.256–.941	[.615, .745]	3,943	19	224.18*	91.97	9,797	
Language of applied measures									14.22**
English	.706	.252–.941	[.653, .752]	4,670	27	269.56*	90.36	10,994	
Other	.662	.256–.881	[.574, .735]	3,586	14	204.82*	93.65	6,395	
Gender									14.58**
Primarily male (at least 75% of males)	.608	.256–.827	[.448, .729]	1,211	6	60.63*	91.75	731	
Primarily female (at least 75% of females)	.692	.252–.878	[.594, .769]	2,744	15	256.61*	94.54	7,205	
Occupations									18.27**
With high likelihood of secondary exposure only	.719	.252–.941	[.652, .775]	3,526	22	271.20*	92.26	2,787	
With high likelihood of both primary exposure and secondary exposure	.662	.256–.827	[.601, .715]	4,730	19	198.42*	90.93	2,496	

Note. CI = confidence interval; STS = secondary traumatic stress; ProQOL = Professional Quality of Life Scale; PTD = posttraumatic stress disorder; MBI = Maslach Burnout Inventory. [a] Weighted effect size. [b] Range of effect sizes. [c] Critical intervals for the weighted effect size. [d] Number of studies. [e] A significant Q value indicates that the data are heterogeneous, suggesting that the variability among studies was not due to sampling error. [f] Value indicates the percentage of variance due to heterogeneity among studies. [g] Value indicates the number of studies with null results that are necessary to overturn the results of meta-analysis and to conclude that the results are due to sampling bias. [h] Test for moderating effect.
* $p < .01$. ** $p < .001$.

associations ($r^2 = .55$) than any other measures of burnout (r^2 range: .28–.53; see Table 2).

Next, we investigated the relationship between STS and three components of job burnout measured with MBI: emotional exhaustion, depersonalization/cynicism, and lack of professional/personal accomplishments (Maslach et al., 2001). Results indicated that the effect size of the relationship between STS and a lack of accomplishment was relatively smaller than the other two effect sizes. In particular, the correlation of STS with emotional

exhaustion (weighted $r = .55$, $r^2 = .30$, $N = 2,361$, $k = 12$) was stronger than the associations with depersonalization, $r = .51$, $r^2 = .26$, $N = 1,939$, $k = 9$, $t(4298) = 11.29$, $p < .001$, or lack of accomplishment, weighted $r = .35$, $r^2 = 12$, $N = 2,158$, $k = 10$, $t(4427) = 41.13$, $p < .001$.

The theoretical framework as the moderator. We tested whether the associations between STS and job burnout differed depending on the use of the compassion fatigue framework (Figley & Stamm, 1996; Stamm, 2010). In particular, associations ob-

tained in studies in which both STS and job burnout were operationalized in line with the compassion fatigue framework (with ProQOL or ProQOL-related measures applied) were compared to the associations found in studies in which STS and job burnout were operationalized in line with other approaches (see Table 2). These other approaches defined STS as PTSD-like symptoms or vicarious trauma. They defined burnout, focusing on the exhaustion component, as the consequence of work related-stress (cf. Maslach et al., 2001). The results of the moderator analysis indicated that the relationship between STS and job burnout was moderated by the type of theoretical framework (see Table 2). For STS, job burnout associations were significantly stronger when both constructs were assessed with the ProQOL or ProQOL-related measures ($r^2 = .55$) compared to the associations observed in studies applying measures derived from other approaches ($r^2 = 34$).

Culture and gender as moderators. The next set of analyses compared: (a) the results obtained in the United States with results found in other countries, and (b) the associations found in studies using English versions of STS and job burnout instruments with the associations found in research using different language versions. Other than the United States, with 19 studies, fewer than 10% of studies were conducted in one country (e.g., four studies in Israel). Therefore, other between-country comparisons were not conducted. The results showed that cultural and language factors moderated the relationship between STS and job burnout (see Table 2). The associations observed for data collected in the United States were significantly stronger ($r^2 = .52$) compared to the relationships found in the studies from other countries ($r^2 = .45$). Similarly, significant differences were found when the associations observed in North America were compared to results obtained on other continents ($r^2 = .49$ and $r^2 = .48$, respectively; see Table 2). Furthermore, the associations found for the English-language versions of measures were significantly stronger ($r^2 = .50$) than the relationships obtained in the studies using other language versions ($r^2 = .44$). Finally, the results indicated that gender might moderate the relationship between STS and job burnout, with stronger associations observed in predominantly female samples ($r^2 = .48$) compared to predominantly male samples ($r^2 = .37$; see Table 2).

Type of occupation in the context of work-related exposure to trauma. Results obtained in original studies involving occupations with an increased likelihood for both direct and indirect exposure were compared to those in which only indirect exposure was likely to occur. The analysis indicated that type of occupation moderated the relationship between STS and job burnout (see Table 2). The associations were stronger in samples with occupations with only secondary exposure ($r^2 = .52$) compared to samples with occupations characterized by high likelihood for both primary and secondary exposure ($r^2 = .44$).

Discussion

Our meta-analysis investigated the relationship between STS and job burnout among employees indirectly exposed to trauma. The indirect exposure could be due to contact with clients or patients who have experienced traumatic events or due to an exposure to other traumatic materials. High levels of burnout and other consequences of indirect exposure to trauma are likely to be elevated among mental health care providers (Newell & MacNeil, 2011) and to affect professionals' well-being, quality of life of

their patients, and the effectiveness of caring (Cheung & Chow, 2011). The present study adds to existing literature by indicating the coexistence of STS and job burnout among professionals exposed indirectly to trauma in their work. The meta-analysis of 41 studies suggests that the association between these two constructs is high, and that these two concepts may share as much as 48% of the variance.

Recently developed frameworks, providing an overview of risk factors for developing negative consequences of working with traumatized patients or clients (Voss Horrell et al., 2011), have assumed that compassion fatigue, burnout, vicarious trauma, and STS constitute a rather homogenous group of psychosocial consequences of secondary exposure. Voss Horrell et al. (2011) suggested that developing this relatively homogenous group of consequences depends on shared risk factors. In other words, it may be assumed that the same risk factors referring to patient, professional, or organizational characteristics would increase the probability of developing compassion fatigue, as well as burnout, vicarious trauma, and PTSD-like symptoms. Strong associations found in our meta-analysis might result from these common risk factors. Further, the effects of indirect exposure to trauma may also be mitigated by cultural and individual resilience factors, such as hardiness or self-efficacy (cf. Luszczynska, Benight, & Cieslak, 2009). Future studies need to investigate the common and specific risk and resilience factors, explaining development of compassion fatigue, burnout, and secondary PTSD.

Research applying constructs and measurement derived from a single theoretical framework is often considered as "the state-of-the-art" approach. By contrast, "covering the bases" by means of amalgamation of several theoretical frameworks is usually assumed as an inferior approach, forcing new relationships on variables from otherwise independent models and creating some redundancy (Figueroa, Kincaid, Rani, & Lewis, 2002). Thus, applying measurement from the same approach, such as compassion fatigue (R. E. Adams et al., 2006; Figley & Stamm, 1996), could be considered as a superior approach to testing the STS–burnout relationship, compared to combining assessment methods from distinct frameworks.

The results of the present study suggest, however, that the application of the compassion fatigue approach to measuring consequences of secondary exposure among professionals has some undesirable consequences. The results of respective moderator analysis indicate that if both STS and job burnout are measured within the compassion fatigue approach (i.e., by means of the ProQOL and related measures), the proportion of shared variance is significantly larger than if the measures are derived from any of the other approaches. If both STS and burnout measures were derived from the compassion fatigue framework, the estimated overlap is 55%, which suggests that STS and burnout constructs might be indistinguishable. The present study does not offer a review of all aspects of STS and burnout theories. Instead, it focused on the operationalization of the key constructs in the STS and burnout frameworks. Therefore, the conclusions are limited to operationalization of the constructs, not entire theories.

Results of our meta-analysis provide arguments for a limited practical utility of applying the ProQOL and ProQOL-related measures when testing for STS and job burnout in one study. Research striving for short measures capturing broader consequences, encompassing symptoms of both STS and burnout, may

want to use one of the subscales of the ProQOL (or ProQOL-related questionnaires), which enables capturing a majority of variance for both constructs.

The results indicate that applying frameworks and measurements different from compassion fatigue (i.e., PTSD-like symptoms, vicarious trauma, or job burnout defined as the focusing on emotional exhaustion consequences of work related-stress) would result in STS and job burnout sharing 34% of variance. In this case, burnout and STS would be related, but measured as sufficiently distinct constructs. This conclusion is in line with earlier research and narrative reviews of literature (Jenkins & Baird, 2002; Sabo, 2011; Thomas & Wilson, 2004).

The results also indicate that a significantly larger overlap between STS and job burnout may be expected if the data are collected in the United States (compared to other countries) and by means of English-language versions of questionnaires (compared to other-language versions). The differences may result from the fact that the translation processes allows for capturing more distinct facets of STS and job burnout. Thus, the translation from English to Hebrew, Dutch, or German may allow for developing refined versions of original methods. Further research needs to investigate the similarities across the language versions in terms of criterion validity and factorial structure. The other source of the between-country differences may result from cultural differences in shaping emotional experiences and emotional processing (Bracken, 2001; Marshall & Suh, 2003) or differences in organizational characteristics, health inequalities, or policies specifying work conditions. Regardless of possible sources of the observed differences, our findings are in line with the assumption that culture is among the key contexts differentiating the effects of secondary exposure among professionals across countries (Marshall & Suh, 2003).

Gender differences in associations between STS and job burnout are in line with previous systematic reviews, suggesting different mechanisms of developing consequences of traumatic stress among men and women (Olff, Langeland, Draijer, & Gersons, 2007). They are also consistent with research that has suggested gender differences in experiencing the depletion of emotional reserves (Watts & Robertson, 2011) or compassion fatigue (Sprang et al., 2007). Further studies should investigate the mechanisms explaining gender inequalities in the likelihood of developing both STS and job burnout among professionals working with trauma survivors.

The results indicating weaker associations between STS and burnout among professionals who are likely to be directly and indirectly exposed to trauma at work, compared to occupations that are likely to involve only indirect exposure, are in line with arguments presented by Palm et al. (2004). Workers exposed to direct trauma at work may be resilient due to better preparedness and training (Palm et al., 2004). Therefore, even if they suffer from one type of consequences of work stress (i.e., burnout), they may not present STS symptoms.

Our research has its limitations. The level of secondary exposure to trauma was not accounted for in our analysis, because several original studies did not assess the exposure. Thus, our results are based on assumptions that the professionals were likely to experience the secondary exposure to trauma, due to the work character and the description of job tasks provided in original studies. Other confounding variables, such as personal history of trauma expo-

sure and other patient characteristics, were also not controlled. Unfortunately, this was not possible, due to the fact that a majority of original research did not account for these factors. Our analyses did not compare service providers who are exposed to trauma indirectly against other human service providers whose level of burnout may result from the strain of caretaking for clients who are not traumatized. Many studies were conducted only once or twice in one country, therefore, a more thorough examination of differences between countries or across language versions was not conducted. Cultural context was defined in a narrow way and referred only to the country of the study and language used in collecting data. It should also be noted that the results should not be generalized to other definitions or frameworks discussing the consequences of secondary work-related exposure to trauma beyond the ones chosen for this review. Finally, the majority of the studies included in the meta-analysis were cross-sectional, therefore no causal associations between STS and job burnout could be investigated.

Conclusion

AQ: 5

Our study provides the first quantitative synthesis of research on the relationships between job burnout and STS among professionals working with traumatized clients. This review shows the moderating effects of theoretical frameworks, type of measures, language, country where data were collected, gender, and type of occupation related to trauma exposure. In general, burnout and STS or compassion fatigue are likely to co-occur among professionals exposed indirectly to trauma through their work. Applications of measures developed within the compassion fatigue framework may result in obtaining stronger relationships between job burnout and STS compared to the use of measures derived from different theoretical frameworks (e.g., the approach to STS focusing on PTSD-like symptoms and the burnout framework focusing on exhaustion component). In particular, STS and burnout constructs may be empirically indistinguishable if measured within the compassion fatigue framework.

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12   CIESLAK ET AL.

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Journal of Clinical Psychology

Secondary Traumatic Growth among Healthcare Workers: Role of Social Support and Self-Efficacy

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Manuscripts

Running head: SECONDARY TRAUMATIC GROWTH   1

Secondary Traumatic Growth among Healthcare Workers: Role of Social Support and Self-Efficacy

Kotaro Shoji, Judith Bock

University of Colorado at Colorado Springs

Roman Cieslak

University of Colorado at Colorado Springs and University of Social Sciences and Humanities,

Warsaw, Poland

Katarzyna Zukowska

University of Social Sciences and Humanities, Warsaw, Poland

Charles C. Benight

University of Colorado at Colorado Springs

Keywords: secondary traumatic stress, secondary traumatic growth, social cognitive

theory, perceived social support, self-efficacy

Author Note

Kotaro Shoji, Trauma, Health, and Hazards Center, University of Colorado at Colorado Springs; Judith Bock, Trauma, Health, and Hazards Center, University of Colorado at Colorado Springs; Roman Cieslak, Trauma, Health, and Hazards Center, University of Colorado at Colorado Springs and Department of Psychology, University of Social Sciences and Humanities, Warsaw, Poland; Katarzyna Zukowska, Department of Psychology, University of Social Sciences and Humanities, Warsaw, Poland; Charles C. Benight, Trauma, Health, and Hazards Center and Department of Psychology, University of Colorado at Colorado Springs.

Correspondence concerning this article should be addressed to Roman Cieslak or Charles C. Benight, Trauma, Health, and Hazards Center, University of Colorado at Colorado Springs, 1420 Austin Bluffs Parkway, Colorado Springs, CO, 80918, rcieslak@uccs.edu or cbenight@uccs.edu, phone 719-255-4180, fax 719-255-3767.

Abstract

Objective: This two-study longitudinal investigation examined the indirect effects of secondary traumatic stress (STS) on secondary traumatic growth via two mediators: perceived social support and secondary trauma self-efficacy. In particular, we tested if the two hypothetical mediators operate independently or sequentially, that is with secondary trauma self-efficacy facilitating social support (i.e., cultivation hypothesis) and/or social support enhancing self-efficacy (i.e., enabling hypothesis).

Method: Participants in Study 1 ($N = 310$ at Time 1, $N = 115$ at Time 2) were behavioral healthcare providers working with U.S. military personnel suffering from trauma. Study 2 was conducted among Polish healthcare workers ($N = 298$ at Time 1, $N = 189$ at Time 2) providing services for civilian survivors of traumatic events.

Results: In both studies, multiple mediational analyses showed evidence for cultivation hypothesis: The relationship between STS at Time 1 and secondary traumatic growth at Time 2 was mediated sequentially by secondary trauma self-efficacy at Time 1 and social support at Time 2. The enabling hypothesis was not supported.

Conclusions: Psychological interventions focusing on the enhancement of secondary traumatic growth may benefit from enhancing self-efficacy with the intent to facilitate perceived social support.

Keywords: secondary traumatic stress, secondary traumatic growth, social cognitive theory, perceived social support, self-efficacy

Secondary Traumatic Growth among Healthcare Workers: Role of Social Support

and Self-Efficacy

Negative outcomes following direct exposure to traumatic or highly stressful events have

been studied widely and have been linked to psychological disorders including posttraumatic

stress disorder (PTSD; Brewin, Andrews, & Valentine, 2000), negative coping behaviors

(Kilpatrick et al., 2000), and disrupted social functioning (Guay, Billette, & Marchand, 2006).

More recently research has focused on defining and measuring positive changes as a part of

healing from trauma and stressful life events.

The concept of positive change following direct exposure to trauma has been discussed in

the literature using several different terms including benefit finding (Hegelson, Reynolds, &

Tomich, 2006), meaning making (Park & Ai, 2006), and posttraumatic growth (Tedeschi &

Calhoun, 2004). Although these concepts have been evaluated in different contexts ranging in

intensity from general stress to more severe trauma, the findings suggest that people strive to

generate positive outcomes from adversity. One area that has not been well-studied is growth

arising from secondary traumatic stress (STS). This study investigated the primary mediators

between indirect trauma exposure and secondary trauma growth.

Secondary traumatic stress is similar in its conceptualization to PTSD, with one

important difference. Posttraumatic stress disorder is defined as a group of symptoms that

include re-experiencing, avoidance, and hyperarousal as a result of *direct* exposure to trauma

(American Psychiatric Association, 2000). Secondary traumatic stress, in comparison, is defined

by the same set of symptoms resulting from *indirect* exposure to trauma (Bride, Robinson,

Yegidis, & Figley, 2004). This indirect exposure is typified by healthcare providers working

with traumatized individuals. It has been associated with many negative consequences including

higher distress and increased negative cognitions (Pearlman & Mac Ian, 1995), higher job

burnout (Ballenger-Browning et al., 2011), and lower job satisfaction (Devilly, Wright, &

Varker, 2009). There are, however, also some positive outcomes of STS.

Research has utilized different concepts for positive outcomes related to providing

trauma-focused treatment. For example, the term *compassion satisfaction* refers to the beneficial

feelings therapists can experience about themselves, their job, and their attitude through their

work with clients (Bride, Radey, & Figley, 2007). In contrast, and building on the posttraumatic

growth construct, Arnold and colleagues (2005) used the term *vicarious posttraumatic growth.*

Their definition included two areas of change that trauma-focused providers experience as a

result of their work: (a) changes in schemas about self and the world, and (b) perceived

psychological growth. Although we agree with Arnold et al.'s conceptualization of vicarious

posttraumatic growth, we have chosen to utilize the term *secondary traumatic growth* as it

denotes more clearly the growth resulting from indirect exposure of trauma.

The literature on the effect of indirect exposure to trauma and STS has focused primarily

on negative outcomes with some acknowledgement to positive outcomes. For example Sprang,

Clark, and Whitt-Woosley (2007) found that specialized trauma therapy training and age were

positively correlated with compassion satisfaction. Linley and Joseph (2007) found that personal

therapy and clinical supervision were positively correlated with compassion satisfaction, and that

therapists using humanistic approaches were more likely to experience higher levels of

compassion satisfaction than therapists using cognitive-behavioral approaches. Other studies

have found positive correlations between STS symptoms and vicarious posttraumatic growth

among therapists (Brockhouse, Msetfi, Cohen, & Joseph, 2001) and disaster workers (Linley &

Joseph, 2006).

SECONDARY TRAUMATIC GROWTH

5

However, there are limitations with these findings. First, the Brockhouse et al. study was cross-sectional. Second, neither study utilized a theory-driven model to help understand the underlying mechanisms related to posttraumatic growth.

In this paper we report on two studies that were longitudinal and theoretically-driven based on social cognitive theory (Bandura, 1997). The model theorizes an interactive effect between social/environmental and intra-individual resources as mediators between STS and secondary traumatic growth. Based on Bandura's interactive dynamic processes between environmental conditions (e.g., social support) and individual appraisals (e.g., self-efficacy), the effect of STS on secondary traumatic growth can be more comprehensively explained.

Self-Efficacy

Self-efficacy refers to perceived ability to manage environmental demands and personal functioning following adverse or traumatic experiences (Benight & Bandura, 2004). Through positive construal of challenging environmental demands (e.g., heavy trauma client workload and material, managing recovery from a car accident), individuals are able to manage these demands in a more effective manner. Indeed, self-efficacy perceptions have been found to predict outcomes for direct and indirect exposure to trauma. For example, self-efficacy is negatively associated with PTSD symptoms following a hurricane (Cieslak et al., 2009) and secondary traumatic distress in lay trauma counselors (Ortlepp & Friedman, 2002). Higher self-efficacy was associated with increased benefit finding in HIV positive patients (Luszczynska, Sarkar, & Knoll, 2007) and increased posttraumatic growth in war exposed populations (Hall et al., 2010).

There is also empirical evidence suggesting self-efficacy may play an important meditational role. Self-efficacy served as a significant mediator in the relationship between

trauma and psychological distress in disaster survivors (Benight, Swift, Sanger, Smith, & Zeppelin, 1999) and between stress appraisal and compassion satisfaction in rescue workers (Prati et al., 2011).

There have been no studies examining the mediation effect of self-efficacy on the relationship between STS and secondary traumatic growth. However, based on well-documented mediating functions of self-efficacy in the context of direct traumatization (Cieslak, Benight, & Lehman, 2008), it is a reasonable extension to predict that self-efficacy would play a mediating role in the relationship between STS and secondary traumatic growth. In our studies, we hypothesized that self-efficacy would mediate the relationship between STS and secondary traumatic growth, with higher STS relating to lower self-efficacy, and lower self-efficacy leading to lower secondary traumatic growth (Hypothesis 1).

Social Support

Social support is a concept that refers to actual aiding resources provided by others (i.e., received social support) or to the perception of availability of aiding resources (i.e., perceived social support, Lin, 1986). Bandura (1997) argued that environmental contexts are crucial to understand human behavior and are a key interactive determinant with individual factors. Higher social support generally leads to lower negative consequences of direct traumatization (e.g., lower PTSD; Besser & Neria, 2012; Griffith, 2012) and higher positive changes after a traumatic event such as posttraumatic growth (Cieslak et al., 2009), benefit finding (Luszczynska et al., 2007), and quality of life (Schwarzer & Gutiérrez-Doña, 2005).

Similar to self-efficacy, social support may be considered a mediator in the relationship between STS and secondary traumatic growth. Although there has been no previous research on the mediating role of social support in this relationship, there is indirect empirical evidence

SECONDARY TRAUMATIC GROWTH   7

indicating this effect. Hogan and Schmidt (2002) demonstrated that social support mediated the

relationship between trauma and posttraumatic growth. In our studies, we hypothesized that

perceived social support would mediate the effect of STS on secondary traumatic growth.

Specifically, higher secondary traumatic stress would lead to lower perceived social support, and

lower perceived social support would predict lower secondary traumatic growth (Hypothesis 2).

Cultivation and Enabling Hypotheses

Self-efficacy and social support have been defined in this study as mediators. Schwarzer

and Knoll (2007), however, argued that these two variables are correlated and that the

relationship between social support and self-efficacy may be bidirectional. There are two

alternative hypotheses explaining the relationship between self-efficacy and social support. The

cultivation hypothesis suggests that self-efficacy facilitates social support, whereas the enabling

hypothesis states that social support enhances and protects self-efficacy (Benight & Bandura,

2004; Schwarzer & Knoll, 2007).

Previous studies supporting the cultivation hypothesis showed, for example, that self-

efficacy through the mediation effect of received social support reduced depressive symptoms

(Schwarzer & Gutiérrez-Doña, 2005; Schwarzer & Knoll, 2007). In the studies testing the

enabling hypothesis, self-efficacy mediated the effect of perceived social support on

psychological distress (Benight et al., 1999) and on quality of life (Amir, Roziner, Knoll, &

Neufeld, 1999), and the effect of received social support on posttraumatic growth (Cieslak et al.,

2009). Although both the cultivation and enabling hypotheses have been supported by research

findings, no studies examined these hypotheses in the context of secondary trauma. We

hypothesized that the effect of STS on secondary traumatic growth would be mediated first by

secondary trauma self-efficacy and then by perceived social support (Hypothesis 3, cultivating

effect), and/or mediated first by perceived social support and then by secondary trauma self-efficacy (Hypothesis 4, enabling effect).

All four hypotheses were tested in two longitudinal studies. Study 1 enrolled behavioral healthcare providers working with military patients suffering from trauma. Civilian healthcare providers offering services for trauma survivors took part in Study 2.

Study 1

Method

Participants. The study was a part of the SupportNet project, investigating predictors of secondary traumatic stress and job burnout among behavioral and mental healthcare providers working with the U.S. military personnel suffering from trauma. Inclusion criteria were (a) working at least one year as a clinical psychologist, counselor, social worker, physician or nurse; (b) providing services for a military population; and (c) being indirectly exposed to trauma through interaction with patients. Of 310 respondents who completed the online survey at Time 1, 293 participants (98 males, 33.4%) were qualified for the present study based on the inclusion criteria. Of those who completed the Time 1 assessment, 115 participants (33 males, 28.7%) took part in Time 2 measurement six months later.

Table 1 displays the demographic information of the sample. Participants experienced indirect exposure to different types of traumatic events through interaction with clients, including, for example, sudden unexpected death of someone close (89.4%), life-threatening illness or injury (88.1%), military combat (86.7%), sexual assault (84.3%), physical assault (82.6%), transportation accidents (80.9%), and natural disasters (66.6%). Additionally, all participants were directly exposed to traumatic events, with the average number of 3.23 ($SD = 1.90$) traumatic events reported per person in a lifetime.

Measures. Participants completed a set of questionnaires evaluating STS, perceived

social support, secondary trauma self-efficacy, and secondary traumatic growth. Additionally,

indirect exposure to trauma and demographic variables were assessed as possible factors that

should be controlled when testing the hypotheses.

Secondary traumatic stress. Secondary Traumatic Stress Scale (Bride et al., 2004) is a

17-item self-rated questionnaire used to measure the frequency of STS symptoms in the past

month. It consists of the Intrusion subscale (five items), the Avoidance subscale (seven items),

and the Arousal subscale (five items). The present study only used a total score of all items.

Participants evaluate frequency of each symptom in relation to their work with patients who had

been exposed to traumatic events. A 5-point scale was used, ranging from 1 (*never*) to 5 (*very*

often). Sample items are: "I felt emotionally numb" and "I felt jumpy". Cronbach's alpha was

.94 for both Time 1 and Time 2 assessments.

Secondary trauma self-efficacy. Because there is evidence that the domain-specific

measures of self-efficacy are more useful in predicting adaptation than are the general ones

(Luszczynska, Scholz, & Schwarzer, 2005), we employed self-efficacy specific to STS.

Secondary trauma self-efficacy is defined as the perceived ability to cope with the challenging

demands resulting from work with traumatized clients and the perceived ability to deal with the

secondary traumatic stress symptoms. Secondary Trauma Self-Efficacy Scale (Cieslak, Shoji et

al., 2012) is a 7-item self-rated questionnaire developed by selecting seven items from other self-

efficacy instruments that were designed to measure perceived ability to cope with demands

resulting from direct exposure to trauma and perceived ability to deal with posttraumatic stress

symptoms (Hyre et al., 2008; Lambert, Benight, Harrison, & Cieslak, 2012). Those items were

modified to measure self-efficacy in the context of indirect exposure to trauma through work

SECONDARY TRAUMATIC GROWTH   10

with traumatized individuals. Participants rate the degree of perceived capability on a 7-point

scale, ranging from 1 (*very incapable*) to 7 (*very capable*). Items begin with "How capable am I

to…". Sample items are: "deal with thoughts that similar things may happen to me" and "deal

with the impact these people have had on my life". Cronbach's alphas were .87 for Time 1 and

.91 for Time 2.

    Perceived social support. Multidimensional Scale of Perceived Social Support (Zimet,

Dahlem, Zimet, & Farley, 1988) is a 12-item self-rated questionnaire measuring availability of

social support from family (4 items), friends (4 items), and broadly defined other significant

persons (4 items). A total score of all items was used in further analyses. The instruction was

modified to measure perceived social support in the context of work-related demands in the past

month. Participants rate the degree of agreement for each item on a 7-point scale, ranging from

1 (*very strongly disagree*) to 7 (*very strongly agree*). Sample items are: "I can talk about my

problems with my friends" and "My family really tries to help me". Cronbach's alpha was .94

for both Time 1 and Time 2.

    Secondary traumatic growth. Posttraumatic Growth Inventory-Short Form (Cann et al.,

2010) was used to assess positive changes resulting from indirect exposure to trauma. The

original PTGI-SF is a 10-item self-rated questionnaire that measures experience of significant

positive change after a particular traumatic event. We modified the instruction by asking

participants to rate the degree of change as a result of their indirect exposure to trauma through

work with clients. A 6-point scale was used, ranging from 0 (*I did not experience this change*) to

5 (*I experienced this change to a very great degree*). Sample items are: "I have a stronger

religious faith" and "I established a new path for my life". Cronbach's alphas were .93 for Time

1 and .92 for Time 2.

SECONDARY TRAUMATIC GROWTH   11

Indirect exposure to trauma. Secondary Trauma Exposure Scale (Cieslak, Anderson et al., 2012) was developed for the present study to measure indirect exposure to traumatic events. It consists of a list of 10 potentially traumatic events, (e.g., natural disasters, transportation accidents, sexual assaults, military combat). Participants respond whether they have been exposed to each event through their work with traumatized clients. Then, they rate how frequently they work with patients who have experienced at least one of the potentially traumatic events on the list, using a 7-point scale, ranging from 1 (*never*) to 7 (*every day*). This one-item index of frequency of the indirect exposure was used as a control variable in further analyses.

Demographics. Demographic questions included age, gender, a relationship status, profession, and highest academic degree.

Procedure. The study was approved by the Institutional Review Board (IRB) at the authors' institution. Providers who were located in the civilian community received the email with a link to the online survey through an online newsletter sent by TriWest Healthcare Alliance, an organization managing health benefits for military patients and their families. Providers located on military installations received the link to the survey in an email from the director of the Department of Behavioral Health at Evans Army Community Hospital at Fort Carson, Colorado and from the Psychology Consultant to the U.S. Army Surgeon General at San Antonio, Texas. Respondents filled out the survey voluntarily, anonymously, and with no compensation for their time. Six months after completion of the Time 1 survey, participants who agreed to take part in the Time 2 assessment received an email invitation to the online survey containing the same set of the questionnaires as in Time 1. Mean time elapsed between the Time 1 and Time 2 surveys was 191.90 days (*SD* = 14.18).

SECONDARY TRAUMATIC GROWTH   12

Analytical procedures. Missing data for all variables were replaced using the hot deck

imputation method (Myers, 2011). Participants' gender, intimate relationship status, and

profession served as the decks. In total 0.43% of the values at Time 1 and 0.51% of the values at

Time 2 were replaced. To test whether the data supported the cultivation hypothesis and/or

enabling hypothesis in a longitudinal design, we performed a series of two multiple mediation

analyses described by Hayes (2012) using the IBM SPSS Statistics (version 21). For an analysis

testing the cultivation hypothesis (Model 1), secondary trauma self-efficacy at Time 1 and

perceived social support at Time 2 were entered into the equation in a serial order to test if

secondary trauma self-efficacy at Time 1 has a delayed effect on perceived social support at

Time 2 (see Figure 1). Indirect exposure to trauma, perceived social support at Time 1, and

secondary traumatic growth at Time 1 were entered into the equation as covariates. For an

analysis testing the enabling hypothesis (Model 2), perceived social support at Time 1 and

secondary trauma self-efficacy at Time 2 were entered into the equation (see Figure 2). The

effect of indirect exposure to trauma, secondary trauma self-efficacy at Time 1, and secondary

traumatic growth at Time 1 were controlled in analyses in Model 2.

Results

Preliminary analyses. Table 2 displays means, standard deviations, and Pearson's

correlations of all variables measured at Time 1 and Time 2. Attrition analysis showed no

significant differences between completers and dropouts in terms of STS at Time 1, $t(291) =$

0.45, $p = .66$; secondary trauma self-efficacy at Time 1, $t(291) = 0.32$, $p = .75$; perceived social

support at Time 1, $t(291) = 0.01$, $p = .99$; secondary traumatic growth at Time 1, $t(291) = 1.13$, p

$= .26$; indirect exposure to trauma, $t(291) = 0.56$, $p = .57$; age, $t(287) = 1.39$, $p = .17$; gender,

SECONDARY TRAUMATIC GROWTH

13

$\chi^2(1) = 1.48$, $p = .22$; relationship status, $\chi^2(1) = 3.30$, $p = .07$; profession, $\chi^2(9) = 11.95$, $p = .22$; and education, $\chi^2(4) = 2.48$, $p = .65$.

Multiple mediation analyses. To test the four hypotheses, two multiple mediation models were analyzed. Model 1 was designed to verify hypothesis 1 (with self-efficacy at Time 1 as a mediator), hypothesis 2 (with social support at Time 2 as a mediator), and hypothesis 3 (i.e., cultivation process). In Model 2, hypotheses 1 and 2 were tested again (but with mediators measured at Time 2 and Time 1, respectively), and hypothesis 4 (i.e., enabling process) was evaluated.

Model 1. The multiple mediation analysis for Model 1 showed that pathway 1, testing the simple mediation effect of secondary trauma self-efficacy at Time 1 (hypothesis 1) and pathway 2, testing hypothesis 2 on the simple mediation role of perceived social support at Time 2, were not significant (see Table 3).

Testing for cultivation hypothesis. Pathway 3 of Model 1 was significant, indicating that the cultivation hypothesis was supported (see Table 3). After controlling for the effects of three covariates (i.e., indirect exposure to trauma measured at Time 1, social support at Time 1, and secondary traumatic growth at Time 1), high secondary traumatic stress at Time 1 predicted decreased secondary trauma self-efficacy at Time 1, $R^2 = .37$, $F(4, 110) = 15.83$, $p < .001$, $f^2 = 0.52$, which in turn predicted low level perceived social support at Time 2, $R^2 = .66$, $F(5, 109) = 42.20$, $p < .001$, $f^2 = 1.94$, and then decreased social support at Time 2 was related to low secondary traumatic growth at Time 2, $R^2 = .41$, $F(6, 108) = 12.36$, $p < .001$, $f^2 = 0.69$. This mediation effect is also shown in Figure 1, where standardized regression values are presented for each effect. When controlling for the covariates, the direct effect of STS at Time 1 on posttraumatic growth at Time 2 was not significant, $\beta = .02$.

SECONDARY TRAUMATIC GROWTH   14

Model 2. The multiple mediation analysis for Model 2 showed that pathway 4, secondary

traumatic stress at Time 1 had a negative indirect effect on secondary traumatic growth at Time 2

through its impact on secondary trauma self-efficacy at Time 2 based on the bootstrapped

confidence intervals (see Table 3 pathway 4). Yet, the regression coefficient for the effect of

secondary trauma self-efficacy at Time 2 on secondary traumatic growth at Time 2 was not

significant (see Figure 2). Pathway 5, testing the mediation effect of perceived social support at

Time 1, was not significant.

Testing for enabling hypothesis. Pathway 6, testing the enabling hypothesis, was not

significant (see Table 3). When controlling for the covariates, results showed that STS at Time 1

did not significantly and directly predict posttraumatic growth at Time 2, $\beta = .05$.

Discussion

Results of Study 1 provided support for the cultivation hypothesis (hypothesis 3) stating

that secondary trauma self-efficacy facilitates perceived social support mediating the effect of

secondary traumatic stress on secondary traumatic growth. The enabling hypothesis (hypothesis

4) and hypothesis 2 were not supported. Inconsistency of the results referring to the mediating

function of self-efficacy (hypothesis 1) requires further investigation. Also, Study 1 should be

replicated on a different sample to be sure that the findings are not specific for behavioral and

mental healthcare providers working with traumatized military populations.

Study 2

To rectify the limitation of Study 1 related to a circumscribed client population, all

hypotheses were tested again in a longitudinal study among general professionals providing

services to traumatized civilian populations. Additionally, these professionals were working

SECONDARY TRAUMATIC GROWTH   15

within a different cultural context, in Poland. Thus, Study 2 was also designed to provide cross-

cultural and clinical population validation of the initial findings.

Method

        Participants. Healthcare and social workers providing services for civilian survivors of

traumatic events were enrolled in the study. Inclusion criteria were (a) working at least one year

as a social worker or healthcare provider (e.g., physician, nurse, or paramedic), (b) providing

services for a civilian population suffering from trauma, and (c) being indirectly exposed to

trauma through interaction with clients. Two-hundred-ninety-eight respondents (69 males,

23.2%) who met these criteria completed the online survey at Time 1. See Table 1 for sample

demographic information. Participants were indirectly exposed to different types of traumatic

events at work, including life-threatening illness or injury (89.3%), physical assault (87.6%),

sudden unexpected death of someone close (82.6%), transportation accidents (73.5%), sexual

assault (52.7%), and natural disasters (30.2%). Only 9.4% of participants were indirectly

exposed to military-related trauma. Additionally, 77.9% of participants had a lifetime direct

exposure to a traumatic event. Of those who completed the Time 1 assessment, 189 participants

(36 males, 19.0%) took part in the Time 2 measurement.

        Measures. Respondents completed the same set of measures as in Study 1. These

included (a) the Secondary Traumatic Stress Scale (αs = .91 for Time 1 and .93 for Time 2), (b)

the Secondary Trauma Self-Efficacy Scale (αs = .89 for Time 1 and .88 for Time 2), (c) the

Multidimensional Scale of Perceived Social Support (α = .96 for both Time 1 and Time 2), and

(d) a modified version of the Posttraumatic Growth Inventory-Short Form (αs = .92 for Time 1

and .91 for Time 2). As in Study 1, only total scores were used for the questionnaires that have

subscales, and the indirect exposure to trauma was measured with one item (frequency of

SECONDARY TRAUMATIC GROWTH   16

exposure) in the Secondary Trauma Exposure Scale. Instructions for all instruments were

modified so that participants were asked to respond to the items in the context of work-related

indirect exposure to trauma. The Polish versions of the questionnaires were prepared using the

back-translation procedure.

Procedure. The study was approved by the IRB at the appropriate institution in Poland.

Data were collected with a web-based survey. Participants were recruited through professional

and online social networks dedicated to specialists working with traumatized clients. Those who

volunteered were informed about the study aims, provided informed consent, and filled out the

online questionnaires. If participants agreed to take part in the Time 2 survey, they received an

email invitation. The mean time that elapsed between the Time 1 and Time 2 surveys was

162.04 days ($SD = 39.72$).

Analytical procedures. As in Study 1, missing data were replaced using the hot deck

imputation method (Myers, 2011). Participants' gender, intimate relationship status, and

profession served as the decks. In total, 0.51% of the values were replaced for Time 1, and

0.58% of the values were replaced for Time 2. A series of two multiple mediation analyses were

performed using the same procedure and software as in Study 1.

Results

Preliminary analyses. Table 2 displays the means, standard deviations, and correlations

for the study variables. Attrition analysis showed no significant differences between completers

and dropouts in terms of STS at Time 1, $t(296) = 0.73$, $p = .47$; secondary trauma self-efficacy at

Time 1, $t(296) = 0.58$, $p = .56$; perceived social support at Time 1, $t(296) = 0.63$, $p = .53$;

secondary traumatic growth at Time 1, $t(256.21) = 0.82$, $p = .41$; indirect trauma exposure,

$t(296) = 1.95$, $p = .05$, age, $t(269) = 0.78$, $p = .45$; intimate relationship status, $\chi^2(1) = 3.61$,

$p = .06$; profession, $\chi^2(9) = 16.42$, $p = .06$; and education $\chi^2(3) = 5.60$, $p = .13$. However,

compared to dropouts, completers were more often women than men, $\chi^2(1) = 4.57$, $p = .03$.

Comparisons of the study variables showed that Study 1 had significantly higher scores on

frequency of indirect exposure to trauma, social support at Time 1 and Time 2, and secondary

trauma self-efficacy at Time 1 and Time 2 compared to Study 2 (see Table 2). Study 2 had

significantly higher scores on secondary traumatic growth at Time 1 and Time 2, and STS at

Time 1 and Time 2 than did Study 1.

Multiple mediation analyses. The hypotheses were tested with the same two multiple

mediation models as in Study 1.

Model 1. The simple meditation effect of perceived social support at Time 2 was found

to be significant in the relationship between STS and secondary traumatic growth (hypothesis 2:

see Table 3 pathway 8). After accounting for the effects of three covariates measured at Time 1,

STS at Time 1 predicted increased perceived social support at Time 2, $R^2 = .22$, $F(4, 184) = 3.98$,

$p = .004$, $f^2 = 0.28$; which in turn was associated with increased levels of secondary traumatic

growth at Time 2, $R^2 = .38$, $F(6, 182) = 18.48$, $p < .18.48$, $f^2 = 0.61$. In contrast, pathway 7,

testing the simple mediation effect of secondary trauma self-efficacy at Time 1 (hypothesis 1),

was not significant.

Testing for cultivation hypothesis. Results of the multiple mediation analysis evaluating

hypothesis 3 found support for the cultivation hypothesis consistent with Study 1 (see Figure 1).

Please refer to the bootstrapping confidence intervals for pathway 9 in Table 3. After partialling

out the effects of the three covariates, STS at Time 1 predicted decreased secondary trauma self-

efficacy at Time 1, $R^2 = .49$, $F(4, 184) = 43.57$, $p < .001$, $f^2 = 0.96$; then the decreased self-

efficacy at Time 1 contributed to the lower level of perceived social support at Time 2, $R^2 = .22$,

$F(5, 183) = 10.38$, $p < .001$, $f^2 = 0.28$; which in turn was related to decreased secondary

traumatic growth at Time 2, $R^2 = .38$, $F(6, 182) = 18.48$, $p < .001$, $f^2 = 0.61$. When accounting

for the covariates, the direct effect of STS at Time 1 was not significant on secondary traumatic

growth at Time 2, $\beta = .01$. See values of standardized regression weights in Figure 1.

Model 2. Results of the simple mediation analysis showed that neither perceived social

support at Time 1 nor secondary trauma self-efficacy at Time 2 mediated the relationship

between STS at Time 1 and secondary traumatic growth at Time 2 (see Table 3 pathways 11 and

10). Thus, hypotheses 1 and 2 were not supported.

Testing for enabling hypothesis. Pathway 12, testing the enabling process (hypothesis 4),

was not significant based on the bootstrapping confidence intervals (see Table 3). An analysis

for the direct effect of STS at Time 1 on secondary traumatic growth at Time 2 showed

nonsignificance when accounting for the three covariates, $\beta = .06$.

Discussion

Results of Study 2 supported the cultivation hypothesis (hypothesis 3) and additionally

indicated that social support, if measured at Time 2, mediates the effect of STS at Time 1 on

secondary traumatic growth at Time 2.

General Discussion

This two-study investigation examined the indirect effects of STS on secondary traumatic

growth via perceived social support and secondary trauma self-efficacy – the two hypothetical

mediators operating independently (hypotheses 1 and 2) or sequentially, that is with secondary

trauma self-efficacy facilitating social support (hypothesis 3), and/or social support enhancing

self-efficacy beliefs (hypothesis 4). As both studies were longitudinal, we were able to test not

only if perceived social support and secondary trauma self-efficacy mediated the effect of STS at

SECONDARY TRAUMATIC GROWTH   19

Time 1 on secondary traumatic growth at Time 2, but also when these mediators should be

measured (Time 1 or Time 2). Our findings in both studies showed that the cultivation

hypothesis (hypothesis 3) was supported in the context of the relationship between secondary

traumatic stress and secondary traumatic growth.

In both studies, secondary trauma self-efficacy, if measured at the same time as STS (i.e.

Time 1), did not mediate the effect of STS on secondary traumatic growth at Time 2. In Study 1,

the bootstrap confidence intervals indicated the mediating role of self-efficacy at Time 2,

although the effect of this mediator on secondary traumatic growth at Time 2 was only

marginally significant ($\beta = .17, p = .09$). In Study 2, self-efficacy at Time 2 did not mediate the

relationship between STS at Time 1 and secondary traumatic growth at Time 2. Summarizing,

although we did not find strong results consistently supporting hypothesis 1 across both studies,

there is limited evidence for the mediating role of secondary trauma self-efficacy at Time 2 in

Study 1.

We found confirmation for hypothesis 2 in Study 2, but only for perceived social support

that was measured at Time 2. This effect, however, was not significant in Study 1. In both

studies, perceived social support at Time 1 did not mediate the effects of STS at Time 1 on

secondary traumatic growth at Time 2. Again, results of the two-study investigation did not

provide consistent evidence for hypothesis 2.

The partial corroboration of hypothesis 1 was found in Study 1 when self-efficacy was

measured at Time 2, and hypothesis 2 was confirmed in Study 2 when social support was

assessed at Time 2. These results may suggest that self-efficacy and social support are more

likely to mediate the effect of indirect exposure if these mediators are measured more closely to

the time when a dependent variable is assessed. This observation needs further investigation

SECONDARY TRAUMATIC GROWTH   20

because it may shed light on contradictory results of cross-sectional studies testing the mediating

effects of social support or self-efficacy (e.g., Lincoln, Chatters, & Taylor, 2005; Pietrzak et al.,

2010).

Another matter requiring attention is an explanation why secondary trauma self-efficacy

was a stand- alone mediator (hypothesis 1) in Study 1, whereas social support was a stand-alone

mediator (hypothesis 2) in Study 2. The two primary differences between the two studies were

the type of indirect exposure (military versus non-military trauma) and the country where study

was conducted (U.S. versus Poland). Although we do not know if either of these factors may be

responsible for the inconsistent results in our studies, there is empirical evidence that direct

exposure to battlefield trauma may lead to different outcomes than other types of traumatic

exposure, such as civilian terrorism, work, or traffic accidents (Amir, Kaplan, & Kotler, 1996).

There is also evidence from studies on direct exposure to trauma that PTSD affects self-

cognitions, such as self-efficacy, more in individualistic cultures (typically Western countries)

than in collectivistic cultures (typically Eastern European countries; Jobson & O'Kearney, 2008).

Moreover, collectivism may function through social support reducing negative consequences of

trauma (Moscardino, Scimin, Capello, & Altoè, 2010). Type of indirect exposure and cultural

values, such as individualism-collectivism, need to be investigated further as possible factors

facilitating or hindering the mediation effects of self-efficacy and social support.

Both studies show robust evidence supporting the cultivation hypothesis (#3). In the

context of the relationship between secondary traumatic stress and secondary traumatic growth

self-efficacy facilitated perceived social support when both mediating factors were

contextualized in trauma-related work settings. Prior to our study, the cultivation hypothesis has

not been tested in the context of secondary traumatization, and it has not been consistently

SECONDARY TRAUMATIC GROWTH   21

confirmed in other research contexts (cf. Schwarzer & Knoll, 2007). An explanation for the

supportive findings with the cultivation hypothesis is that the mediating factors measured were

matched to the type of stressful event (i.e., indirect exposure) and the type of outcome (i.e.,

secondary traumatic growth; Kaniasty & Norris, 1992).

In the same trauma-related work context, we have not found evidence for a reverse

process where perceived social support enriches secondary trauma self-efficacy beliefs. Indeed,

the enabling hypothesis (#4) was not supported. Our results contradict some earlier findings

(Amir et al. 1999, Cieslak et al., 2009). However, these other studies testing the enabling

hypothesis were conducted in contexts other than with mental health providers indirectly

exposed to trauma.

The studies included in this paper have some limitations. Although both of our studies

were longitudinal, there were only two measurement points, whereas a four-wave investigation

would be optimal to test a sequential multiple mediation model with two mediators. Structural

equation modeling could be used for testing the mediational hypotheses and comparing the

goodness of fit for Models 1 and 2. Unfortunately, that would require a bigger sample size,

which was difficult to achieve considering the specificity of investigated groups. Statistical

procedures employed in this paper allowed for a robust estimation of indirect effects with the

optimal ratio between a sample size and the number of parameters in a regression model.

Additionally, comparing to the Sobel test, the bootstrapping method used for testing mediating

effects makes no assumption of normality of distribution. From a theoretical perspective,

although our assumption was that secondary traumatic growth is a positive outcome and reflects

process of adaptation after indirect exposure to trauma, there are studies indicating that

SECONDARY TRAUMATIC GROWTH   22

posttraumatic growth may be dysfunctional in the context of direct traumatization (Hobfoll et al.,

2007). Further investigation of this issue is required for secondary traumatic growth.

Confirmation of the cultivation hypothesis in both presented studies has some practical

implications for behavioral healthcare providers and healthcare workers offering services for

traumatized populations. As there are no doubts that offering these kinds of services leads to a

higher risk of secondary traumatic stress (Bride et al., 2004), it is important to know what

psychological processes may be involved in translating this negative outcome into a positive one

(e.g., secondary traumatic growth). Our studies showed that secondary trauma self-efficacy

decreased as a result of secondary traumatic stress and that higher self-efficacy only indirectly,

through social support, promoted secondary traumatic growth. Practically, it means that

psychological interventions focusing on development of secondary traumatic growth in our

populations should target specific self-efficacy perceptions related to secondary traumatic stress

in order to reduce a negative resource loss spiral (Hobfoll & Lilly, 1993).

Summarizing, this is the first longitudinal two-study investigation of how social support

and self-efficacy operate as the mediators between secondary traumatic stress and secondary

traumatic growth. Both studies consistently supported the cultivation hypothesis, indicating that

self-efficacy being affected by secondary traumatic stress facilitates social support and this

indirect pathway contributes to development of secondary traumatic growth.

SECONDARY TRAUMATIC GROWTH   23

SECONDARY TRAUMATIC GROWTH   24

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SECONDARY TRAUMATIC GROWTH   31

Table 1

Descriptive and Demographic Statistics for Study 1 and Study 2

Measure	Study 1 T1	Study 1 T2	Study 2 T1	Study 2 T2
Mean age (*SD*)	48.91 (12.83)	50.27 (12.59)	35.37 (8.48)	35.08 (8.12)
Gender				
Female	195 (66.6%)	82 (71.3%)	226 (75.8%)	150 (80.6%)
Male	98 (33.4%)	33 (28.7%)	69 (23.2%)	36 (19.0%)
Intimate relationship				
LTR	224 (76.5%)	81 (70.4%)	219 (73.5%)	146 (77.2%)
Not in a LTR	62 (21.2%)	31 (27.0%)	77 (25.8%)	42 (22.2%)
Highest degree				
High school	1 (0.3%)	0 (0%)	62 (20.8%)	35 (18.5%)
Associate's degree	1 (0.4%)	0 (0%)		
Bachelor's degree	6 (2.0%)	2 (1.7%)	65 (21.8%)	37 (19.6%)
Master's degree	130 (44.4%)	55 (47.8%)	166 (55.7%)	114 (60.3%)
Doctorate degree	155 (52.9%)	58 (50.4%)	3 (1.0%)	1 (0.5%)
Profession				
	115 CP (39.2%)	41 CP (35.7%)	143 HCP (48.0%)	86 HCP (45.5%)
	77 counselors (26.3%)	27 counselors (23.5%)	113 SW (37.9%)	77 SW (40.7%)
	56 SW (19.1%)	21 SW (18.3%)	37 others (12.4%)	23 others (12.2%)
	35 HCP (11.9%)	7 HCP (6.1%)		

Note. T1 = Time 1, T2 = Time 2. Sample size for Study 1: N_{T1} = 293, N_{T2} = 115. Sample size for Study 2: N_{T1} = 298,

N_{T2} = 189. Some percentages did not add up to 100% because of missing data. Long-term relationship included

married couples and couples in a committed relationship. CP = clinical psychologist; HCP = healthcare provider;

LTR = long-term relationship; SW = social worker.

SECONDARY TRAUMATIC GROWTH

32

Table 2

Means, Standard Deviations, Pearson's correlations among Study Variables for Study 1 and Study 2

Measure	1	2	3	4	5	6	7	8	9	Mean (SD) Study 1	Study 2	t
1. Indirect Exposure		.12*	.14	-.03	-.06	-.02	-.08	.07	.01	6.20 (1.04)	4.69 (1.72)	13.28***
2. ST Stress T1	-.05		.79***	-.16**	-.10	-.65***	-.54***	-.06	-.05	1.87 (0.66)	2.32 (0.65)	8.40***
3. ST Stress T2	.05	.76***		-.16*	-.20**	-.60***	-.60***	-.01	.01	1.78 (0.64)	2.28 (0.69)	6.37***
4. Social Support T1	.12*	-.34***	.24*		.34***	.25***	.20**	.13	.13	5.79 (1.06)	5.00 (1.51)	7.34***
5. Social Support T2	.07	-.19*	-.26**	.80***		.34***	.37***	.04	.17*	5.71 (1.16)	5.14 (1.33)	3.87***
6. ST Self-Efficacy T1	.04	-.55***	-.43***	.33***	.35***		.65***	.15*	.16*	6.10 (0.77)	5.19 (0.94)	12.94***
7. ST Self-Efficacy T2	.04	-.48***	-.56***	.24*	.35***	.62***		.11	.13	6.18 (0.84)	5.28 (0.91)	8.68***
8. ST Growth T1	.11	.11	.18	.13*	.13	.15*	.15		.60***	2.36 (1.29)	2.89 (1.09)	5.48***
9. ST Growth T2	-.04	.08	.03	.17	.25**	.22**	.21*	.60***		2.25 (1.28)	3.00 (1.00)	5.40***

Note. *** $p < .001$. ** $p < .01$. * $p < .05$. T1 = Time 1; T2 = Time 2. Correlations below the diagonal show values for Study 1 ($N_{T1} = 293$, $N_{T2} = 115$).

Correlations above the diagonal show values for Study 2 ($N_{T1} = 298$, $N_{T2} = 189$). ST Self-Efficacy = Secondary trauma self-efficacy; ST Growth: Secondary

traumatic growth; ST Stress = Secondary traumatic stress, Indirect Exposure = Indirect exposure to trauma.

SECONDARY TRAUMATIC GROWTH 33

Table 3

Mediating Effects of Perceived Social Support and Secondary Trauma Self-Efficacy on the Relationship between Secondary Traumatic Stress and Secondary Traumatic Growth

			Bootstrapping	
			BC 95% CI	
Indirect Effects Pathways	Estimate	*SE*	Lower	Higher
Study 1: Model 1				
1. ST Stress T1→ST Self-Efficacy T1→ST Growth T2	-.036	.082	-.215	.108
2. ST Stress T1→Support T2→ST Growth T2	.057	.047	-.011	.186
3. ST Stress T1→ST Self-Efficacy T1→Support T2→ST Growth T2	-.043	.029	-.130	-.002
Total	-.022	.094	-.211	.152
Study 1: Model 2				
4. ST Stress T1→ST Self-Efficacy T2→ST Growth T2	-.085	.051	-.207	-.004
5. ST Stress T1→Support T1→ST Growth T2	-.027	.044	-.157	.022
6. ST Stress T1→Support T1→ST Self-Efficacy T2→ST Growth T2	-.000	.006	-.013	.010
Total	-.112	.066	-.262	.000
Study 2: Model 1				
7. ST Stress T1→ST Self-Efficacy T1→ST Growth T2	-.010	.071	-.153	.125
8. ST Stress T1→Support T2→ST Growth T2	.048	.029	.008	.131
9. ST Stress T1→ST Self-Efficacy T1→Support T2→ST Growth T2	-.058	.030	-.136	-.015
Total	-.020	.072	-.165	.116
Study 2: Model 2				
10. ST Stress T1→ST Self-Efficacy T2→ST Growth T2	-.018	.025	-.089	.016
11. ST Stress T1→Support T1→ST Growth T2	.003	.011	-.008	.043
12. ST Stress T1→Support T1→SE Self-Efficacy T2→ST Growth T2	.000	.001	-.000	.006
Total	-.015	.027	-.088	.024

Note. Each bootstrap was based on 5,000 repetitions. Bias corrected (BC) confidence intervals (CI) that do not include zero indicate a significant indirect effect. T1 = Time 1; T2 = Time 2; ST Stress = Secondary traumatic stress; ST Self-Efficacy = Secondary trauma self-efficacy; Support = Perceived social support; ST Growth = Secondary traumatic growth.

Figure Captions

Figure 1. Model 1, referring to the cultivation hypothesis, being tested with the multiple

mediation analysis. A value before the slash is standardized regression coefficient (i.e., β) for

Study 1, and value after the slash is β for Study 2. *** $p < .001$; ** $p < .01$; * $p < .05$; T1 = Time

1; T2 = Time 2; ST Stress = Secondary traumatic stress; ST Self-Efficacy = Secondary trauma

self-efficacy; ST Growth = Secondary traumatic growth. Additionally, the following effects were

controlled in the analyses: (a) effect of indirect exposure at Time 1 on secondary trauma self-

efficacy at Time 1 (β = .11, $p = .17$ for Study 1 and β = .07, $p = .23$ for Study 2), social support at

Time 2 (β = .04, p = .55 for Study 1 and β = -.06, $p = .39$ for Study 2), and secondary traumatic

growth at Time 2 (β = -.10, $p = .21$ for Study 1 and β = -.05, $p = .39$ for Study 2); (b) effect of

social support at Time 1 on secondary trauma self-efficacy at Time 1 (β = .16, $p = .05$ for Study

1 and β = .15, $p = .01$ for Study 2), social support at Time 2 (β = .78, $p < .001$ for Study 1 and β

= .27, $p < .001$ for Study 2), and secondary traumatic growth at Time 2 (β = -.14, $p = .29$ for

Study 1 and β = .001, p = .99 for Study 2); (c) effect of secondary traumatic growth at Time 1 on

secondary trauma self-efficacy at Time 1 (β = .29, $p < .001$ for Study 1 and β = .12, $p = .03$ for

Study 2), social support at Time 2 (β = -.04, $p = .51$ for Study 1 and β = -.06, $p = .40$ for Study

2), and secondary traumatic growth at Time 2 (β = .58, $p < .001$ for Study 1 and β = .60, $p <$

.001 for Study 2).

Figure 2. Model 2, referring to the enabling hypothesis, being tested with the multiple

mediation analysis. A value before the slash is standardized regression coefficient (i.e., β) for

Study 1, and value after the slash is β for Study 2. *** $p < .001$; ** $p < .01$; * $p < .05$; T1 = Time

1; T2 = Time 2; ST Stress = Secondary traumatic stress; ST Self-Efficacy = Secondary trauma

self-efficacy; ST Growth = Secondary traumatic growth. Additionally, the following effects were

controlled in the analyses: (a) effect of indirect exposure at Time 1 on social support at Time 1 (β = .05, p = .61 for Study 1 and β = -.10, p = .17 for Study 2), secondary trauma self-efficacy at Time 2 (β = .02, p = .80 for Study 1 and β = -.07, p = .24 for Study 2), and secondary traumatic growth at Time 2 (β = -.09, p = .25 for Study 1 and β = -.06, p = .36 for Study 2); (b) effect of secondary trauma self-efficacy at Tim 1 on social support at Time 1 (β = .22, p = .05 for Study 1 and β = .26, p = .01 for Study 2), secondary trauma self-efficacy at Time 2 (β = .49, p < .001 for Study 1 and β = .51, p < .001 for Study 2), and secondary traumatic growth at Time 2 (β = -.004, p = .97 for Study 1 and β = .04, p = .68 for Study 2); (c) effect of secondary traumatic growth at Time 1 on social support at Time 1 (β = .11, p = .27 for Study 1 and β = .09, p = .20 for Study 2), secondary trauma self-efficacy at Time 2 (β = .05, p = .53 for Study 1 and β = -.003, p = .96 for Study 2), and secondary traumatic growth at Time 2 (β = .56, p < .001 for Study 1 and β = .59, p < .001 for Study 2).
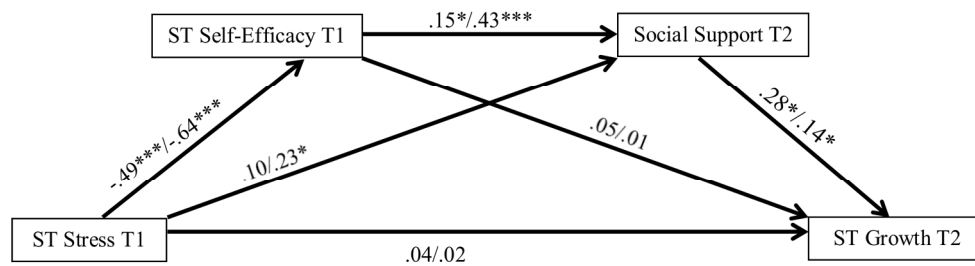
532x150mm (96 x 96 DPI)

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                              .002/.04
   Social Support T1  ─────────────────────▶  ST Self-Efficacy T2

         -.15/.05        -.25**/-.19*      .08/.04        .17/.07

   ST Stress T1  ──────────────────────────────────▶  ST Growth T2
                              .11/.07
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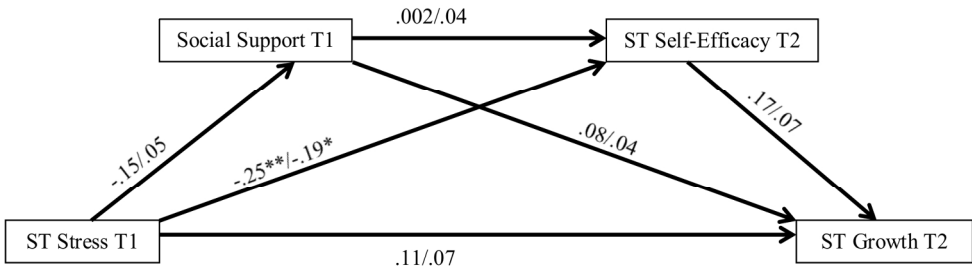
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Hidden Costs of Secondary Traumatic Stress and Burnout on Military Personnel

Abstract

The current emphasis on the alarming rates of post-traumatic stress among military members, while warranted, masks a related challenge to behavioral health providers of these members – namely, job burnout and secondary traumatic stress. This paper reviews the constructs of burnout and secondary trauma, particularly as they relate to behavioral health providers. We then review the literature providing evidence of the individual and organizational consequences of burnout and secondary trauma for providers working with military clients. Unfortunately, barriers exist which might discourage providers working with military clients from seeking help. We offer brief justifications for considering stigmata associated with help-seeking, (lack of) time, and professional "drift" in this light. We also review an intervention system titled SupportNet. SupportNet is a web-based, theoretically grounded intervention targeting job burnout and secondary trauma in providers. Based on social cognitive theory, SupportNet focuses on two remediating processes: enhancing coping self-efficacy and building social support. We briefly describe the conceptual underpinnings of SupportNet, explain how the system is designed to reduce job burnout and secondary trauma, and indicate how it addresses the barriers to seeking help for providers. We focus specifically on providers working with military clients, but the system is applicable to the broad range of mental and behavioral health therapists. Finally, we offer "best practice" implications for supervisors of behavioral health providers and the providers themselves based on the literature and our SupportNet application.

Keywords: secondary traumatic stress, job burnout, social cognitive theory, military behavioral healthcare providers, online intervention

Hidden Costs of Secondary Traumatic Stress and Burnout on Military Personnel

Recent military operations in Iraq, Afghanistan, Kuwait and elsewhere have led to a growing population of military members returning from combat and hazardous duties. As this number increases, the incidence of psychological problems, including depression and posttraumatic stress disorder (PTSD) among these military members, has also grown (Seal, Bertenthal, Miner, Sen, & Marmar, 2007). Estimates of PTSD prevalence among troops deployed to Iraq and Afghanistan have varied considerably, likely due to methodological and measurement differences (Ramchand et al., 2010). Sundin and colleagues (2010) conducted a comprehensive review of prevalence studies, including non-treatment-seeking samples. The authors found that among these methodologically sound studies, rates of PTSD ranged from 10% to 17% in samples of line infantry units. Not surprisingly, PTSD prevalence among treatment-seeking samples appears to be considerably higher. Studies using anonymous self-report measures report rates ranging from 12% (Erbes, Westermeyer, Engdahl & Johnsen, 2007) to 37.8% (Jakupcak, Luterek, Hunt, Conybeare, & McFall, 2008).

Depression and substance abuse are also problematic among this population. Thomas et al. (2010) reported rates of depression from 11% among National Guard members to 16% among Active Component soldiers. Moreover, 12.4% of the National Guard soldiers and 14.5% of the Active Duty reported misuse of alcohol. For treatment-seeking veterans, Seal et al. (2009) reported 17.4% had been diagnosed with depression, 7.1% with an alcohol use disorder and 3% with a drug use disorder. Importantly, these authors found that among the 10,676 veterans that had been diagnosed with a mental disorder, approximately 62% had more than one diagnosis.

Clearly, military members are suffering, at substantial rates, a range of debilitating effects related to combat experiences. Compounding this human toll, an unfortunate and somewhat

unforeseen consequence of responding to this increased burden of care is the elevated exposure to

indirect trauma. Behavioral healthcare providers who treat veterans for trauma-induced

psychological problems may themselves suffer from secondary traumatic stress (STS), symptoms

similar to PTSD, and experience job burnout due to indirect exposure. The consequences of

indirect trauma exposure among military providers have only recently been empirically evaluated

(Cieslak, Anderson et al., in press). Recognition of this challenge has critical implications for

providing effective care for returning combat veterans and their families. This paper provides a

review of the STS and burnout constructs, an evaluation of the clinical consequences of these

issues, and description of a theoretically-based system of care to address STS and burnout.

Secondary Traumatic Stress

The effects of trauma reverberate beyond the individual who initially experienced it.

Secondary traumatic stress entails the emotional and physiological arousal that treating trauma

elicits in therapists (Figley, 1995). Through indirect exposure, professional caregivers and others

who interact with traumatized individuals may experience symptoms that closely resemble PTSD,

including re-experiencing, hyper-arousal, avoidance and numbing. Thus, STS reactions are

nearly identical to PTSD except that the stressor (Criterion 1A) is experienced indirectly.

Behavioral healthcare professionals, both civilian and military, who treat traumatized

military members therefore face unique challenges through their exposure to graphic stories of

combat and socially sanctioned killing (Figley, 1978). In a prevalence study of STS among such

providers, 18.6% met the criteria for PTSD (Cieslak, Anderson et al., in press). Indirect exposure

to the trauma of combat veterans may affect behavioral healthcare professionals personally and

professionally (Voss Horell et al., 2011); they may experience stress and coping difficulties that

impact their clinical effectiveness (e.g., empathy, capacity for listening to emotional topics).

Indeed, repeated empathetic engagement with soldiers or their families sharing traumatic material may disrupt therapists' views of themselves, others, and the world (Pearlman & MacIan, 1995).

Job Burnout

Whereas STS is precipitated by exposure to traumatic material, job burnout is typically brought on by increased workload and occupational stress (Bride & Figley, 2009). As a psychological construct, job burnout is conceptualized as a psychological response to high levels of work-related stress, and is generally viewed as consisting of two central components: exhaustion and disengagement. Exhaustion is the consequence of intensive physical, emotional, and cognitive strain, and may manifest itself as an individual feeling emotionally drained, physically devoid of energy, and pushed beyond one's limits (Demerouti, Bakker, Nachreiner, & Schaufeli 2001). Disengagement refers to distancing oneself from one's work and experiencing negative or cynical attitudes toward clients, work content, or work in general. Chronically high workloads coupled with little or no time to process or restore work-life balance often result in this sort of exhaustion (Leiter & Maslach, 2004).

Further, the risk of burnout may be greater in providers working with military members. In a study of behavioral health providers working in a military installation, Ballenger-Browning and colleagues (2011) found burnout levels were significantly higher than in civilian counterparts. Greater burnout was related to working more hours, increased patient caseloads, and having fewer confidants at work. Due to the high exposure to environmental, physical, and emotional stressors, clinical military psychologists may be especially at risk for developing job burnout (Linnerooth, Mrdjenovich, & Moore, 2011). Lang, Patrician, and Steele (2012) revealed high rates of burnout among both deployed Army nurses and those working at U.S.-based Army hospitals. For deployed nurses, exhaustion was related to perceived lack of support from management and

relationships with colleagues.

Because of the personal nature of their work and the types of clients they serve, human service professionals (e.g., social workers, counselors, nurses) are especially prone to job burnout. Research has also shown that burnout (and STS) leads to significant negative effects on job performance outcomes. Most notably, psychologists who experience burnout risk diminished quality of care (Harrison & Westwood, 2009). Significantly, the consequences associated with job burnout, and STS, extend beyond the individual: mitigating the consequences to providers is therefore an important avenue to assure the delivery of quality treatment of military personnel.

<div style="text-align:center;">**Consequences of Burnout and STS**</div>

The potential negative consequences of working with trauma clients indeed reach beyond the therapist's life, families and clients. Job burnout and STS may trigger, for example, lower organizational commitment, lower job performance, negative job behaviors, and increased withdrawal (e.g., absenteeism, turnover).

Organizational Commitment

Organizational commitment is "the relative strength of an individual's identification with and involvement in a particular organization" (Mowday, Steers, & Porter, 1979). Generally, higher burnout and STS are associated with lower organizational commitment. Alarcon (2011) reported medium effect sizes relating organizational commitment and burnout. Similarly, Argentero and Setti (2011) found avoidance symptoms of STS were related to lower organizational commitment among rescue workers. Such findings suggest individuals who are emotionally spent because of work-related trauma and associated demands have little energy left to devote to their organizations. Other findings support this view: military psychologists who had left service tended to have lower organizational commitment than those who remained on

active duty or retired (Mangelsdorff, 1989). Low organizational commitment among members is

harmful to an organization because it increases a counterproductive behavior such as turnover

(Mathieu & Zajac, 1990). These counterproductive behaviors are costly for a large organization

such as the military.

Job Performance

The risks to providers working with trauma clients (burnout and STS) may also directly

affect patient care. In a meta-analytic review, Swider and Zimmerman (2010) reported the

relationship between burnout and job performance exhibited a medium effect size. Whether this

relationship was a function of lower organizational commitment, fewer personal resources to

devote to task demands, or other factors, this link seems intuitive, and worthy of intervention

attempts (Morse, Salyers, Rollins, Monroe-DeVita, & Pfahler, 2012). High therapist burnout has

also been linked to lower client engagement in the therapeutic process (Landrum, Knight, &

Flynn, 2012) and lower client satisfaction (Garman, Corrigan, & Morris, 2002).

Low therapeutic engagement and low therapeutic satisfaction among clients, of course,

are indicative of poor therapeutic working alliances and speak directly to quality of care. The

meta-analytic review of Martin, Garske, and Davis (2000) reported that a positive therapeutic

working alliance between therapist and client was associated with positive treatment outcomes.

High-quality therapeutic working alliances have been associated with positive treatment

outcomes in traumatized clients elsewhere as well (Knaevelsrud & Maercker, 2006). Providers

working with traumatized military personnel need to maintain a positive therapeutic alliance as a

key to realizing successful treatment outcomes. Establishing a support system for these

providers to minimize the risks inherent in trauma treatment may help facilitate providers'

capacity to maintain high-quality therapeutic relationships and maximize quality of care.

Organizational Citizenship Behaviors

Perhaps a less-obvious consequence of STS and burnout is the constellation of behaviors known as organizational citizenship behaviors (OCBs). Organ (1988) defined OCBs as "behavior(s) of a discretionary nature that are not part of the employee's formal role requirements, but nevertheless promote the effective functioning of the organization" (p4). These behaviors have been linked to organizational outcomes. For example, negative OCBs were related to higher exhaustion and higher turnover intentions among hospital workers and supervisors (Cropanzano, Rupp, & Byrne, 2003).

The risks inherent in trauma treatment (especially STS) may create vulnerability on the part of providers to exhibit negative OCBs. Workplace bullying (WB) serves as a conceptual exemplar. Namie (2003) reported victims of WB suffered stress-related health disorders. In fact, Leymann and Gustafsson (1996) reported 37% of WB victims met all the criteria for PTSD. Finally, Appelbaum, Semerjian, and Mohan (2012) cited evidence that WB resulted in withdrawal of OCBs. The link seems noteworthy – workplace trauma may lead to negative OCBs on the part of organizational members. In agreement, we note Chiu and Tsai (2006), who recommended, "to prevent employees from withdrawing positive work behaviors, managers should adopt stress intervention mechanisms to mitigate the employees' emotional exhaustion and sense of diminished personal accomplishment" (p.527). Establishing a support system for military mental and behavioral health providers seems warranted to reduce STS and burnout to, in turn, maximize the prevalence of positive provider OCBs and thereby improve treatment for military members and their families.

Turnover

The association between job burnout and turnover is well documented. A meta-analysis (Alarcon, 2011) reported higher burnout was related to higher rates of turnover and turnover intent. Among behavioral health providers, turnover is consistently higher than average, ranging from 23% to 30% (Selden, 2010). Patrician, Shang, and Lake (2010) found Army nurses reported significantly higher burnout than did civilian nurses, suggesting providers to military personnel may be particularly vulnerable to burnout, and in turn higher turnover.

On the other hand, while STS is likely to influence turnover, given the association between STS and burnout (Figley, 1995), we need more empirical evidence further understand this relationship. In this regard, we are just beginning to uncover the extent of the problems posed by STS and burnout in military mental and behavioral health providers (Cieslak, Anderson et al., in press).

Turnover costs transcend individual-level loss. For comparison, in the civilian population, these include direct (cost of temporary staff, overtime, recruitment, training new staff) and indirect costs (reduced productivity among remaining staff, initial reduced productivity of new staff; Chisholm, Russell, & Humphreys, 2011). As of May 2012, the median annual salary of clinical and counseling psychologists in the U.S. was $67,650 (U.S. Bureau of Labor Statistics, 2012). Based on the calculation of costs for turnover provided by Selden (2010), the minimum (direct and indirect) costs to replace lost workers are 30% of annual salary (i.e., $20,295 per). Therefore, assuming 50 clinical and counseling psychologists work at a military installation with a 20% turnover rate, the annual cost of turnover is $202,950.

Job burnout and STS among providers raise the risk of decreasing quality of care for military members and their families, and potentially expose military units to other direct and indirect costs. It behooves us then, to explore the most promising options to reduce these

challenges for providers. However, several hurdles stand in the way of getting care to providers

that they will utilize.

Barriers to Seeking Help

Providers working with traumatized military members are clearly laboring under an

increasing burden of care. In great measure, these burdens may lead to heightened STS and job

burnout. Yet despite these potentially debilitating difficulties, these professionals may not be

seeking the help they need. We briefly explore three barriers to seeking care.

Ironically, given the national conversation on overcoming the **stigma** associated with

psychological problems for active duty soldiers, stigma associated with seeking care providers

working with military members and their families is also a concern. However, this reluctance

may not be surprising given the context in which these providers work. Only 38-45% of military

personnel who had been deployed to Iraq and Afghanistan and met diagnostic criteria for

psychological disorders expressed interest in seeking help, and were twice as likely as healthy

members to report concerns regarding stigmata attached to help-seeking (Hoge et al., 2004).

Military personnel often feel more discomfort discussing psychological problems than physical

ones and are less likely to follow psychological health referrals (Britt, 2000). Although these

studies were conducted with military personnel overall, Gibbons and colleagues (2012) reported

a large proportion of OEF/OIF healthcare providers believed receiving psychological treatment

would damage their careers.

To increase the likelihood of providers seeking help, we need in part to implement a

support system the use of which does not result in stigma. An internet-based program or

intervention is an optimal option here, as Zinzow, Britt, McFadden, Burnette, and Gillispie

(2012) suggested. In fact, the internet has already been used to treat psychological problems

(Benight, Ruzek, & Waldrep, 2008). Internet treatment platform have been demonstrated

effective; in a meta-analysis, Sloan, Gallagher, Feinstein, Lee and Pruneau (2011) found internet-

based interventions effective in reducing PTSD symptoms. Such success may be attributed to

the fact that internet-based interventions offer benefits face-to-face therapy does not offer, such

as fewer stigmata, greater accessibility, and fewer time demands, to which we briefly turn.

Another help-seeking hurdle for providers is being pressed for **time**. As with many

occupations, members of the military often work long hours. Work schedules may be

unpredictable, and temporary duty assignments and deployments may be unscheduled or thrust

on the member with little notice. Moreover, providers report they often feel it is difficult to get

time off to seek treatment for their psychological problems (Kim, Britt, Kloko, Riviere, & Adler,

2011). Sadly, providers are likely to experience even greater demands on their time due to

expanding workloads, with greater risk of STS and burnout, while at the same time experiencing

less time available to seek help for the greater risks. This scenario offers the likelihood of a

vicious cycle resulting in heightened vulnerability for providers. Providers who are themselves

members of the military may be at greater risk still, given the culture of "no weakness" in which

they work, and the unpredictability of their schedules. To maximize the potential for treatment

benefit, interventions aimed at alleviating burnout and STS for providers should incorporate the

capability of being delivered relatively quickly and flexibly.

Last, recent research suggests providers may not be very good at **identifying their own**

impairment levels (Johnson, Barnett, Elman, Forest, & Kaslow, 2012). Although providers are

well educated, most likely well disciplined (hence the ability to take advanced degrees), aware of

psychological issues in general, and trained in multiple treatment modalities, they still almost

never avail themselves of professional services or consultation (Johnson et al., 2012). Part of

being a therapist entails the development of emotional regulation skills, which allow a clinician

to effectively contain emotional responses to a client's material in order to focus on a client's

emotions rather than the therapist's own. As a result, therapists may tend to detach from their

own emotional states even after they have "left the office"; over time, this detachment can lead

to decreased self-awareness, self-monitoring, self-care, a lack of genuineness in valued

relationships, and a distorted sense of self (Norcross & Guy, 2007).

Added to this predilection, providers strapped for time and/or already experiencing

exhaustion due to job burnout may be even less likely to seek help, perceiving they do not have

the resources to get help or make use of it. These circumstances might in turn lead providers to

isolate themselves from colleagues, who might otherwise be able to extend advice, support, and

empathy. As a consequence of this psychological (and possibly physical) isolation, providers

may experience "drift" – an unintended move away from mainstream values, best practices,

professional norms, or knowledge, any of which might engender a greater likelihood of help-

seeking or acknowledging personal difficulties. Indeed, for providers with high levels of STS

and burnout, negative changes in beliefs about oneself, others, and the world may also impair

ones capacity to seek care (and provide) care. Thus, in addition to addressing the other hurdles

to help-seeking, promising interventions for this population should provide a means by which

individual providers can re-connect with the mainstream of the profession who can offer

immediate support and connection, and enhance their perceptions of self-competence.

An Intervention/Support System for Providers: SupportNet

An intervention targeting burnout and STS for providers serving military members and

their families should offer enough anonymity to avoid public stigma for the provider, require a

smaller time footprint and allow flexible scheduling, and encourage providers to connect with

others for support, re-orientation, and professional re-focusing. We offer a theoretically

grounded, web-based intervention to support healthcare providers, which satisfies these criteria.

Social Cognitive Theory

Incorporating psychological theory as a framework for intervention design is a key to its

effectiveness (Webb, Joseph, Yardley, & Michie, 2010). SupportNet, an internet-based support

system designed to reduce STS and burnout among behavioral healthcare providers, uses social

cognitive theory (SCT) as its theoretical underpinning.

Social cognitive theory is a comprehensive theory of human behavior (Bandura, 1997)

that highlights bi-directional interactions between three critical variables: the environment; the

person; and behavior. Called triadic reciprocal determinism, this framework emphasizes self-

regulation as a key mechanism for human adaptation. This triadic system functions through

feedback both internally (cognitive appraisal processes) and externally (changes in

environmental conditions), recalibrating efforts toward desired outcomes (e.g., reduction of

negative states). The self-regulation process is driven by self-evaluation of successful or

unsuccessful achievement of valued goals. Social cognitive theory provides important key

mechanisms for understanding secondary trauma and burnout in mental and behavioral health

providers. Self-efficacy, a key construct in the self-evaluative process, and social support, a

critical environmental factor, are critical constructs.

Self-efficacy is the perception of one's capability to enact a certain behavior. Self-

efficacy perceptions have been found to be highly predictive of behavior across multiple

domains of human functioning (Bandura, 1997). Furthermore, self-efficacy beliefs are highly

predictive of motivational processes such as effective goal setting and perseverance (Bandura,

2007) and have been found to predict outcomes related to direct and indirect exposure to trauma.

Self-efficacy has been demonstrated to be related to important posttraumatic outcomes across a variety of traumatic domains (Luszczynska, Benight, & Cieslak, 2009). Similarly, higher self-efficacy was related to decreased job burnout among social and healthcare professionals (Nota, Ferrari, & Soresi, 2007). More recently, secondary trauma self-efficacy was found to be significantly correlated with secondary traumatic stress symptoms, negative beliefs about the self, and social support perceptions (Cieslak, Shoji et al., in press).

An environmental resource that helps successful adaptation to risk and uncertainty is *social support*: actual aiding resources provided by others (received social support) or the perception of the availability of aiding resources (perceived social support; Lin, 1986). Greater social support generally leads to fewer negative consequences resulting from direct traumatization (e.g., lower PTSD; Besser & Neria, 2012). In a meta-analytic study, Halbesleben (2006) found that greater social support was associated with reduced burnout. Equally important, social support for therapists struggling with STS is a crucial component by which to provide a safe environment to seek help (Argentero & Setti, 2011; Johnson et al., 2012). Given the restorative and resilience-building capacities of the constructs comprising SCT, SupportNet uses this as the theoretical cornerstone of its assessment and intervention initiative.

The SupportNet Program

SupportNet focuses on enhancing self-efficacy and social support to reduce STS and burnout among mental and behavioral healthcare providers. Building on the empirical findings on the effects of self-efficacy and social support, SupportNet provides tools for behavioral healthcare providers to enhance self-efficacy and build a support network.

Enhancing self-efficacy. To enhance coping self-efficacy, SupportNet uses a goal-setting component that provides an engaging vehicle for participants to assess and develop

mastery in a specific area. As part of the goal-setting process, participants identify and assess

their core values. Based on participants' values and with assistance from a coach, participants

develop relevant goals, and can then set up, modify, or delete the goals, share them with their

social network, track goal progress, and specify rewards for achieving their goals. The goal-

setting component in SupportNet is designed to foster a sense of mastery, thereby enhancing

self-efficacy as participants successfully achieve successive steps toward their goals (Bandura,

1997).

Enhancing social support. SupportNet uses an embedded platform to enhance social

support among participating providers. The platform allows participants to insert, change, and

delete others from their individual support network. Based on participants' expressed needs in

both personal and professional domains, SupportNet matches and recommends potential social

support candidates to each participant from a list of those who have identified their willingness

to be a mentor in their respective areas of expertise.

Incorporating SCT, SupportNet jointly cultivates self-efficacy and social support in

participants. In doing so, the aim of the intervention is to leave participants with intrapersonal

and interpersonal resources with which they can more robustly respond to the challenges

associated with treating military members who have experienced trauma. The interweaving of

psychological theory, web design, and effective coaching offer promise for this innovative

program, and we are currently testing the program in a randomized controlled trial.

Implications and Applications

The increased prevalence of combat and hazardous duty veterans with PTSD and co-

morbidities poses a challenge all its own, yet the hidden costs - secondary trauma and burnout

thrust on providers who care for military personnel and their families – warrant further attention,

and innovative treatments. Provider impairment is a real and significantly neglected concern that places the provider him- or herself in peril, and the military members and their families they treat, as well. In addition, for providers working in larger organizations (particularly military installations or community agencies), critical organizational costs are also likely. We developed SupportNet as an innovative, theoretically grounded, targeted treatment for providers to military trauma victims, who themselves suffer burnout and/or STS. The current controlled trial, the first of any intervention for secondary trauma and burnout we are aware of, should provide a critical test of its effectiveness. Beyond SupportNet, however, it is imperative that organizations, supervisors, and providers themselves create self-care opportunities and implement targeted programs to diminish the deleterious effects of the work risked by these "second front" mental and behavioral healthcare providers.

Implications for Supervisors

Clearly, social support plays a central role in addressing the risks associated treating trauma clients. Supervisors should take, or make, opportunities to offer personal and organizational support to their providers, which might range from personal conversations, adjusting workloads, altering work schedules, or making available the opportunity for providers to engage in self-care activities. These tactics are likely to engender greater trust in the organization on the part of the providers, which in turn leads to a number of positive consequences for the unit (Podsakoff & MacKenzie, 1994). As importantly, supervisors are in a position of leverage and can create and maintain a culture of help-seeking, where even the "toughest" members feel comfortable seeking assistance for issues they find difficult to deal with on their own.

Implications for providers

Ironically, members of the caring professions often neglect to take care of themselves (Johnson et al., 2012). Self-care activities do not need to take a lot of time, and providers should seek out options that provide significant payoff for relatively little investment. The SupportNet website might serve as an initial reference. Overloaded, stressed, burned-out providers may also isolate themselves from colleagues and from the professional mainstream, whether intentionally or otherwise. To counteract the ensuing "drift" and feelings of helplessness, they should look for efficient, engaging ways to enhance their support systems. Finally, providers should take seriously the issues of professional impairment and self-awareness and foster consultive relationships that offer realistic appraisals and a safe environment to help manage the demands of the work they do.

SupportNet addresses the factors that influence job burnout and secondary traumatic stress through increasing self-efficacy and perceived social support. As use of such a system becomes broader, the potential for social and professional support increases due to the breadth and depth of expertise available for professional and personal growth and development through mentorship and support. The costs of ignoring the risks of trauma treatment for all parties are real and potentially devastating for military members and their families. It seems a professional imperative that providers place themselves higher on their own care list, and avail themselves of the promise of new approaches to renewal.

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28   PROFESSIONAL BURNOUT

Charles Benight and Roman Cieslak

Researchers and practitioners have shown increasing interest in job burnout since the term was coined independently by Herbert J. Freudenberger and Christina Maslach in the late 1970s. As of May 2012 there were 3,682 publications recorded in the Web of Knowledge database that had job or work burnout in the topic. In 2010 there were 419, and in 2011 there were 493 such publications. These numbers show that job burnout is becoming one of the most popular fields of research in occupational health psychology.

The growing interest in job burnout has at least two sources. First, employees themselves have popularized the term "burnout" when describing their difficulties in dealing with intense work demands, challenging clients, and poor organizational resources. Second, occupational health psychologists have become increasingly focused on operationalizing the term, determining methods of assessment, validating different constructs, and applying theoretical systems to map burnout's trajectory. This has led to intriguing debates concerning identification of risk and protective factors linked to burnout in an attempt to generate a knowledge base for intervention strategies. Despite the popular use of the term, the scientific arena is emerging with significant gaps between what we understand intuitively and what we understand through theory and evidence related to job burnout.

DEFINITIONS AND MEASURES

There are many definitions and measures for job burnout. Job burnout is "a prolonged response to chronic emotional and interpersonal stressors on the job, and is defined by three dimensions of exhaustion, cynicism, and inefficacy" (Maslach, Schaufeli, & Leiter, 2001, p. 397). Although this definition is the most popular and was used for developing the frequently cited Maslach Burnout Inventory—General Survey (MBI-GS), it is not the only one. Three other definitions suggest that job burnout might be reduced to a single common experience: exhaustion. Each of these definitions has led to developing a different measure: Copenhagen Burnout Inventory (CBI), Burnout Measure (BM), Shirom-Melamed Burnout Measure (SMBM).

Demerouti and her colleagues proposed yet another conceptualization and measure of job burnout (Demerouti, Bakker, Vardakou, & Kantas, 2003). According to their conceptualization, job burnout consists of two dimensions: exhaustion and disengagement from work, which refers to "distancing oneself from one's work and experiencing negative attitude toward the work objects, work content, or one's work in general" (p. 14). Both dimensions are included in the Oldenburg Burnout Inventory (OLBI), an alternative to the MBI-GS. Conceptualization of exhaustion in the OLBI is broader than that in the Maslach measure, as

it is seen as "a consequence of intensive physical, affective, and cognitive strain, i.e., as a long-term consequence of prolonged exposure to certain job demands" (p. 14).

In all of these alternatives to the MBI-GS conceptualizations and measures, professional inefficacy (a hypothetical third component of job-burnout) is consistently regarded as a separate construct. Across all definitions the overarching contributing factor to burnout has been intense prolonged exposure to significant job demands. Burnout might also arise from other less obvious sources.

Recently, job burnout has been also perceived as the consequence of indirect exposure to trauma in professionals working with traumatized clients (Stamm, 2010). Job burnout is understood here in a different way than in other conceptualizations, mentioned above. This type of burnout is "associated with feelings of hopelessness and difficulties in dealing with work or in doing your job effectively" (p. 13). Job burnout, along with secondary trauma reactions (e.g., post-traumatic stress symptoms) related to indirect trauma exposure, has important negative occupational and personal consequences including changes in cognitive beliefs about the self and the world.

ANTECEDENTS OF JOB BURNOUT

The list of job burnout antecedents is long, and includes both situational and individual factors. Two most frequently cited review papers on job burnout (Cordes & Dougherty, 1993, Maslach et al., 2001) indicated that job burnout might be caused or facilitated by work overload, time pressure, role conflict, role ambiguity, lack of social support, low control over work, low autonomy, and insufficient positive feedback. In addition to these job characteristics, important organizational, social, and cultural values that are not supported or realized through work are critical to consider. The following personality and individual difference factors also were found to be predictive of high job burnout: low hardiness (i.e., low commitment to job, low

job control, and tendency to appraise situation more like a threat than a challenge), external locus of control, passive or avoiding coping styles, low self-esteem, and low self-efficacy. Some demographic characteristics that contribute to job burnout include younger age or limited experience, being unmarried or single, and higher level of education.

THEORETICAL MODELS OF JOB BURNOUT

Along with the research aimed at testing the correlates (or antecedents) of job burnout, several theoretical models were proposed to explain processes and psychological mechanisms involved in developing job burnout. One of the popular theories is that job burnout is a prolonged response to chronic work stress. Although this thesis appeals to many practitioners and scientists, there are other symptoms that, along with the job burnout, may be considered the effect of prolonged exposure to chronic job-related stress such as depression and work dissatisfaction. This theory is not specific enough to explain processes that are unique to job burnout.

Other theoretical approaches, so-called developmental models, concentrate on developmental trajectories of job burnout over time. In these approaches, job burnout is not a static constellation of symptoms but a process that, for example, may start from emotional exhaustion leading to cynicism, which finally affects perception of inefficacy at work.

The job demands-resources (JD-R) model is currently the most influential theoretical approach to understand job burnout (Demerouti & Bakker, 2011). According to this model, when defining risk and protective factors for job burnout one should consider the occupational setting. These factors, different for various work settings, can be categorized into two broad categories: job demands and job resources. Job demands refer to those aspects of the job that require effort or skills and therefore lead to some physiological and psychological costs. Job resources relate to components of the job that are helpful in (1) achieving work-related

goals, (2) reducing job demands and costs associated with these demands, and (3) stimulating personal development (Demerouti & Bakker, 2011). Through health impairment and motivational processes, job demands and resources directly, or in interaction with each other, affect job burnout and ultimately affect work engagement. The JD-R model shows that from organizational and individual perspectives it is important to know what factors lead to a negative outcome, such as job burnout. At the same time, however, knowledge about factors promoting positive outcomes, such as work engagement, is also necessary.

WORK ENGAGEMENT

Work engagement is sometimes perceived as the opposite end of the job burnout dimension and therefore is characterized by high energy, involvement, and perceived efficacy at work (Maslach et al., 2001). Another conceptualization of work engagement is of an independent construct, which is negatively correlated with job burnout and defined by three symptoms: vigor (e.g., a high level of energy and persistence), dedication (e.g., involvement and a sense of significance of the job), and absorption (e.g., concentration on a job to the extent that one has a sense of time passing quickly; Bakker, Schaufeli, Leiter, & Taris, 2008). Work engagement is often measured with the Utrecht Work Engagement Scale (UWES, 17- or 9-item version).

JOB BURNOUT AND WORK ENGAGEMENT AMONG PSYCHOLOGISTS

For practitioners, the notion that work engagement is separate from the job burnout phenomenon has important implications. Those practitioners who want to optimize their functioning at work and improve work-related well-being should not only take some actions to prevent job burnout, but also take some, probably different, actions to increase work engagement. In thinking about ways to foster

work engagement and reduce job burnout, one must consider both contributing factors of resources and demands. Generating increased resources such as social support may influence work engagement but not reduce burnout. Whereas reducing job demands might positively impact burnout, it may not increase work engagement. Importantly, studies among practicing psychologists have shown that work-home conflict and home-work conflict are positively related to job burnout and that these types of conflicts may mediate the effects of job demands and resources on job burnout (Rupert, Stevanovic, & Hunley, 2009). Thus, determining an appropriate balance between personal and professional demands and resources is an important challenge for all psychologists.

CONSEQUENCES OF JOB BURNOUT

Job burnout has significant consequences (see Maslach et al., 2001 for review). Most of them relate to job performance and subjective well-being or health. Interestingly, the same outcomes are included in studies on consequences of work stress. This indicates possible connections or overlaps between work stress and burnout processes. In terms of job performance, high job burnout is related to higher absenteeism, higher turnover or intention to quit the job, lower effectiveness at work, and low job or organizational commitment. It may also affect organizational standards and culture, making burned out individuals less focused on high quality performance and respecting human values in day-to-day operations.

Discussion of health-related outcomes of job burnout should be contextualized in the existing diagnostic categories and diagnostic systems. Job burnout symptomatology partially reassembles diagnostic criteria for neurasthenia, described in the World Health Organization's International Classification of Diseases (ICD-10) under code F48, "other neurotic disorders." The term "burn-out," defined as a "state of vital exhaustion," may also be found under code Z73.0 in "problems

related to life-management difficulty." Job burnout is not recognized in the *Diagnostic and Statistical Manual* (DSM-IV-TR) but, in the current proposal for the DSM revision, it might be classified under category G 05 "trauma- or stressor-related disorder not elsewhere classified."

Physiological correlates of job burnout are typical of the effects of prolonged exposure to stress and include more frequent and stronger somatic complaints (e.g., headaches, chest pains, nausea, and gastrointestinal symptoms). People with high job stress are also at risk for developing depression and anxiety, but the causality of this relationship is not clear, as both anxiety and depression may also contribute to the development of job burnout.

SPILLOVER AND CROSSOVER EFFECTS OF JOB BURNOUT

Most definitions assume that job burnout is related to only one domain of human functioning (i.e., work and job-related activities). However, the consequences of job burnout may be experienced in other domains of life, such as family life. This interdomain transmission of the effects is called spillover. The example of negative spillover effect might be a situation when family roles or activities are disrupted due to job burnout. Positive spillover may take place when resources from one domain (e.g., family life) are used as a protective factor, acting against developing job burnout or reducing its negative consequences. For example, fulfilled family life and satisfactory family relationships may protect from emotional exhaustion and cynicism.

Whereas spillover is an intrapersonal transfer of consequences across different domains of functioning, crossover is an interpersonal transmutation of consequences. For example, an employee's burnout has an effect on a spouse's burnout and in that indirect way reduces life satisfaction of the spouse (Demerouti, Bakker, & Schaufeli, 2005). These are critical implications to consider in developing new interventions related to burnout.

PREDICTORS OF JOB BURNOUT AMONG MILITARY PSYCHOLOGISTS

There is limited evidence for the prevalence of job burnout and its risk factors among military mental health providers. Ballenger-Browning et al. (2011) showed that in a nonrepresentative sample of 97 providers, 27.8% reported high levels of emotional exhaustion, 18.6% had high levels of depersonalization, and 4.1% had indicated low levels of personal accomplishment, measured with the MBI version for human services (MBI-HSS). The intensity of job burnout among military mental health providers was compared to burnout levels among 730 civilian mental health providers. The results showed that military providers had lower depersonalization and higher personal accomplishment (Ballenger-Browning et al., 2011). The same study showed that risk factors for emotional exhaustion were: being a psychiatrist (comparing to other mental health professions), working long hours, and being female. High depersonalization was predicted by having a high percentage of patients with personality disorders and low percentage of patients with traumatic brain injury in providers' caseloads. Low personal accomplishment was reported more often by those who were not psychologists, were seeing a high number of patients per week, indicated low support from work and reported fewer years of clinical experience.

RECOMMENDATIONS FOR MILITARY PSYCHOLOGISTS

Recommendations for job burnout prevention among military psychologists are difficult to provide given the limited data in this area. However, the general (i.e., useful for a majority of working population) or specific (i.e., unique for job demands in that profession) interventions can focus on the individual or the organization. Given the unique nature of the military hierarchical environment, organizational interventions become more complex. However, efforts should be made to increase workload control, work flexibility, and enhancement

of peer and supervisory support. Individual interventions that promote individual resource development (self-care strategies, work/home balance, symptom processing), professional skill promotion, and social resource enhancement (peer support, friends, etc.) prove to be effective in many cases. Military psychologists (Linnerooth, Mrdjenovich, and Moore, 2011) shared the professional experiences that helped them to cope with job burnout. Although the job demands were different for the predeployment, deployment, and postdeployment phases, the coping mechanisms were similar across these phases and included investment in individual resources (e.g., military and professional trainings), developing social network (family and professional relations), and acting proactively with the awareness that ethics standards and self-care are important parts of military psychologists' jobs. There is more work to be done to help determine the most beneficial methods to assist military psychologists.

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SupportNet

Fort Carson SupportNet Focus Group

July 12, 2012

Valerie Anderson, PsyD

SupportNet Clinical Director

Judith Bock, PsyD

SupportNet Program Clinician & Advisor

Factors Affecting STS and Burnout

Personal and Social Factors

Personal or Social Factor / Study	Effects	Support Mode
Therapist's personal, perhaps unresolved trauma history (Pearlman & MacIan, 1995) (Voss Horrell, Holohan, Didion, & Vance, 2011) (Linley & Joseph, 2007)	↑ STS risk ↑ General distress ↑ Posttraumatic growth	Individual trauma treatment
Self-efficacy (Ortlepp & Friedman, 2002)	↓ STS	Internet-based intervention for building self-efficacy
Poor self-care and work/life balance (Killian, 2008) (Voss Horrell, Holohan, Didion, & Vance, 2011)	↓ Work Engagement ↓ Job Satisfaction ↑ Job burnout	Internet social support platform; individual coaching
Perceived personal and professional social support (Devilly, Wright, & Varker, 2009) (Voss Horrell, Holohan, Didion, & Vance, 2011); Peer consultation	↓ Job burnout ↓ STS ↑ Self-efficacy ↑ Work engagement	Internet social support platform

Factors Affecting STS and Burnout

Organizational Factors

Organizational Factor / Study	Effects	Support Mode
Supportive supervision; ability to debrief informally and process client's traumatic material (Killian, 2008) (Voss Horrell, Holohan, Didion, & Vance, 2011) (Linley & Joseph, 2007)	↑ Compassion Satisfaction ↑ Posttraumatic growth	Internet social support platform (professional) Management Dashboard
Caseload / Workload; (Craig & Sprang, 2010) (Voss Horrell, Holohan, Didion, & Vance, 2011) (Linley & Joseph, 2007)	↑ STS ↑ Burnout	Management Dashboard
Evidence Based Practices (Craig & Sprang, 2010) (Voss Horrell, Holohan, Didion, & Vance, 2011)	↓ Burnout ↓ Compassion fatigue ↑ Compassion Satisfaction	Training; Newsletter/Research Advisory
Professional (trauma) training (Craig & Sprang, 2010)	↓ Compassion fatigue ↓ Burnout	Training; Newsletter/ Research Advisory
Percent of caseload with trauma cases; Balanced / diverse caseloads (Craig & Sprang, 2010) (Voss Horrell, Holohan, Didion, & Vance, 2011) (Ortlepp & Friedman, 2002)	↑ Job burnout ↑ STS	Organizational
<u>Safety</u> and <u>control</u>; safe working environment (Devilly, Wright, & Varker, 2009)	↓ Job satisfaction ↑ General distress	Organizational

Proposed Support System

Internet-based support systems
Improving social support, psycho-education, and building self-efficacy

Newsletter/Research Advisory
Quarterly newsletter and monthly research advisories to address research on trauma treatments with links to articles or papers that address trauma treatment issues. The purpose of the advisories is to supplement ongoing training in evidence-based trauma treatment.

Trauma-Specific Training
Trauma-specific trainings that are provided by the military will be listed on the internet-based social support platform. In addition, the SupportNet team will provide periodic training seminars featuring renowned experts in the field.

Management/Supervisor "Dashboard"
The supervisory "dashboard" would be an on-line system to monitor the well-being of supervisees including self-care, case load, burnout and STS

Individual coaching
Individual or team coaching will be provided to help providers meet their personal goals for self-care and work/life balance available in-person, online or via Telehealth technologies.

Individual trauma treatment
Short-term, in-person and solution-focused treatment for individual trauma using evidence-based practices on an as-requested basis. Behavioral health issues outside of specific trauma treatment and urgent or emergent issues affecting safety referred to a network provider.

Group Discussion Questions

1. What types of programs are available to you to help you with professional growth or burnout?
   - How are they helpful?
   - What could be improved?

2. How do you establish and maintain professional relationships with your peers?

Preparing for the next meeting (August 16, 2012)

▪For discussion at the next meeting:

Please put some thought into how the support system modules might be incorporated into your work environment

Schedule of Focus Group Meetings
Thursday, August 16 at 09:30
Thursday, September 20 at 09:30

SupportNet

Fort Carson SupportNet Focus Group

August16, 2012

Valerie Anderson, PsyD

SupportNet Clinical Director

Judith Bock, PsyD

SupportNet Program Clinician & Advisor

Proposed Support System

Internet-based support systems
Improving social support, psycho-education, and building self-efficacy

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Proposed Technology-Based Modules of the SupportNet S...

Modules

Multiple Platforms

Social Networking Platform

Developing Self-Efficacy

Personal Support System including discussion threads with selected "coaches"

Professional Support System including discussion threads with selected "coaches"

Setting Personal Self-care or Professional Goals

Assessment – How am I doing?

Psycho-education: Mindfulness, Burnout and Secondary Trauma

Journaling Telling the Story

Mindfulness & Relaxation exercises

▪*DISCUSSION*

▪*Looking at the overall Proposed Support System:*
  ▪*For each module, what are the benefits and drawbacks?*
  ▪*How would they integrate with your current work environment?*
  ▪*Rank order based on usefulness?*

▪*Looking at the Technology-Based modules:*
  ▪*For each module, what are the benefits and drawbacks?*
  ▪*How would it integrate with your current work environment?*

Schedule of Focus Group Meetings
Thursday, September 20 at 09:30

Fort Carson SupportNet Focus Group

September 20, 2012

Valerie Anderson, PsyD
SupportNet Clinical Director
Judith Bock, PsyD
SupportNet Program Clinician & Advisor

SupportNet Project

- **The question we are trying to answer:**

  - Does social support, self-efficacy, and skills enhancement affect secondary traumatic stress, job burn-out, and work engagement?

Synthesizing Data from Multiple Sources

Feedback from Focus Groups

Analysis of Data from Surveys

Research Findings on Burnout & STS

Developing New Components:

- **Newsletter:** To provide information about the latest research developments in trauma treatment, burnout and secondary traumatic stress.
- **Technology-based support system:** To provide a way to improve social support and self-efficacy.
- **Coaching:** To provide individual coaching to help with formulating and meeting personal goals for self-care, work/life balance, and for professional development goals.

Integrating Existing Components:

- **Trauma-specific training**
- **Individual Trauma Treatment**

Removing Components:

- **Management Dashboard**

SupportNet Project
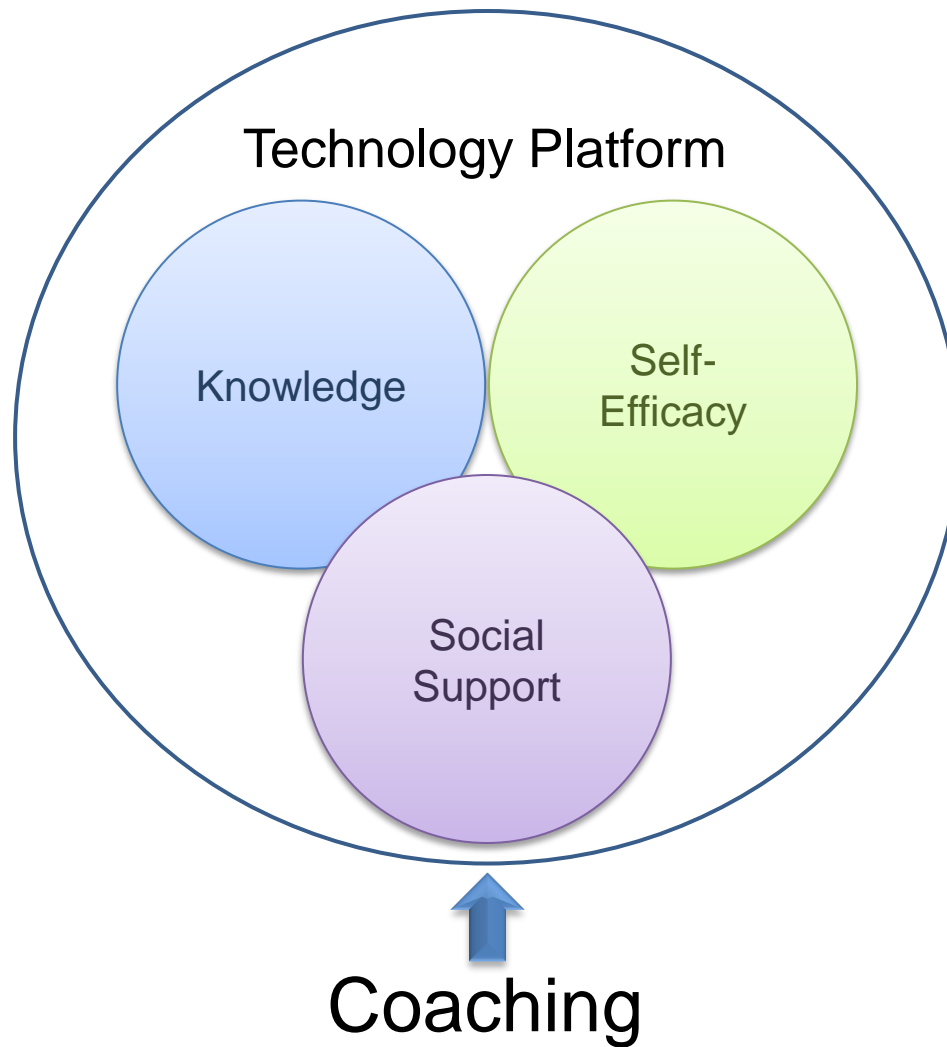
Proposed Support System

Internet-based support systems - IMPORTANT
Improving social support, psycho-education, and building self-efficacy

Newsletter/Research Advisory - IMPORTANT
Quarterly newsletter and monthly research advisories to address research on trauma treatments with links to articles or papers that address trauma treatment issues. The purpose of the advisories is to supplement ongoing training in evidence-based trauma treatment.

Trauma-Specific Training - Integrating
Trauma-specific trainings that are provided by the military will be listed on the internet-based social support platform. In addition, the SupportNet team will provide periodic training seminars featuring renowned experts in the field.

Management/Supervisor "Dashboard" - REMOVED
The supervisory "dashboard" would be an on-line system to monitor the well-being of supervisees including self-care, case load, burnout and STS

Individual coaching - IMPORTANT
Individual or team coaching will be provided to help providers meet their personal goals for self-care and work/life balance. Available in-person, online or via Telehealth technologies.

Individual trauma treatment - Integrating
Short-term, in-person and solution-focused treatment for individual trauma using evidence-based practices on an as-requested basis. Behavioral health issues outside of specific trauma treatment and urgent or emergent issues affecting safety referred to a network provider.

SupportNet Project

Online Newsletter/ Research Advisories

Discussion Threads with Professional Network

Self-Assessment Current Ratings Link to rating history

Training and Special Event Notification Window

Discussion Threads with Personal Network

Setting and Tracking Personal and Professional Goals

SupportNet Project

- **Questions:**

  - How is this different from what you already have available to you?

  - If a system such as this was available, would you be more likely to access it via the web or on a smart-phone?

SupportNet Project

- **Schedule of Upcoming Meetings**

  - Thursday, January 17, 2013 at 0930
  - Thursday, February 14, 2013 at 0930
  - Thursday, March 14, 2013 at 0930

UCCS University of Colorado Colorado Springs

Fort Carson SupportNet Focus Group
January 17, 2013

Valerie Anderson, PsyD
SupportNet Clinical Director
Judith Bock, PsyD
SupportNet Program Clinician & Advisor

SupportNet Project

- Update on the project:
  - Technology development team
    - *Carrie Yeager, MS, Computer Science*
    - *Al Glock, PhD, Computer Science*
  - Coaching program
  - Plan for evaluating the system through randomized controlled trial

SupportNet Project

The objectives of the internet support system are:

- Reduce job burnout
- Reduce secondary traumatic stress (STS)
- Improve work engagement
- Improve secondary traumatic growth
- Increase personal awareness of burnout and STS issues
- Increase self-care behaviors/activities
- Increase coping self-efficacy

SupportNet Project

Vocabulary for roles in the system:

- **Provider** – a user of the system. May also be a connection or mentor.
- **Connection** – another system user (Provider) who has been identified as a member of Provider's social support network
- **Mentor** – another system user (Provider) who has identified themselves as a special member of a Provider's social support network who has specialized expertise in any number of areas and who is willing to provide mentorship to other Providers
- **Coach** – a SupportNet behavioral health clinician who is providing coaching services to Providers

SupportNet Project

Online Library

Social Support Platform

Self-Assessment

Training and Event Notification

Goal Setting and Tracking

SupportNet Project

Self-Assessment Module

6 VERY SHORT measures of:

- Social support
- Job burnout
- Coping self-efficacy
- Secondary traumatic stress
- Secondary traumatic growth
- Work engagement

SupportNet Library

A learning resource in the form of text, graphics, audio clips, and video clips for articles and research re:

- self-efficacy
- secondary traumatic stress
- burnout
- social support
- wellbeing
- self-care
- secondary traumatic growth
- work engagement
- work/life balance

Take 5 - Ideas for how to take a quick relaxation break

SupportNet Project

Coaching

- How "Providers", "Coaches" and the system interact with each other

SupportNet Project

Life Balance Wheel
Reflecting Values and Goals

Money/Finance — Home/Physical Environment — Career/Work — Family/Friend/Partner/ Love Relationships — Spirituality — Health/Fitness — Fun — Growth/Learning

Desired Satisfaction Rating

Current Satisfaction Rating
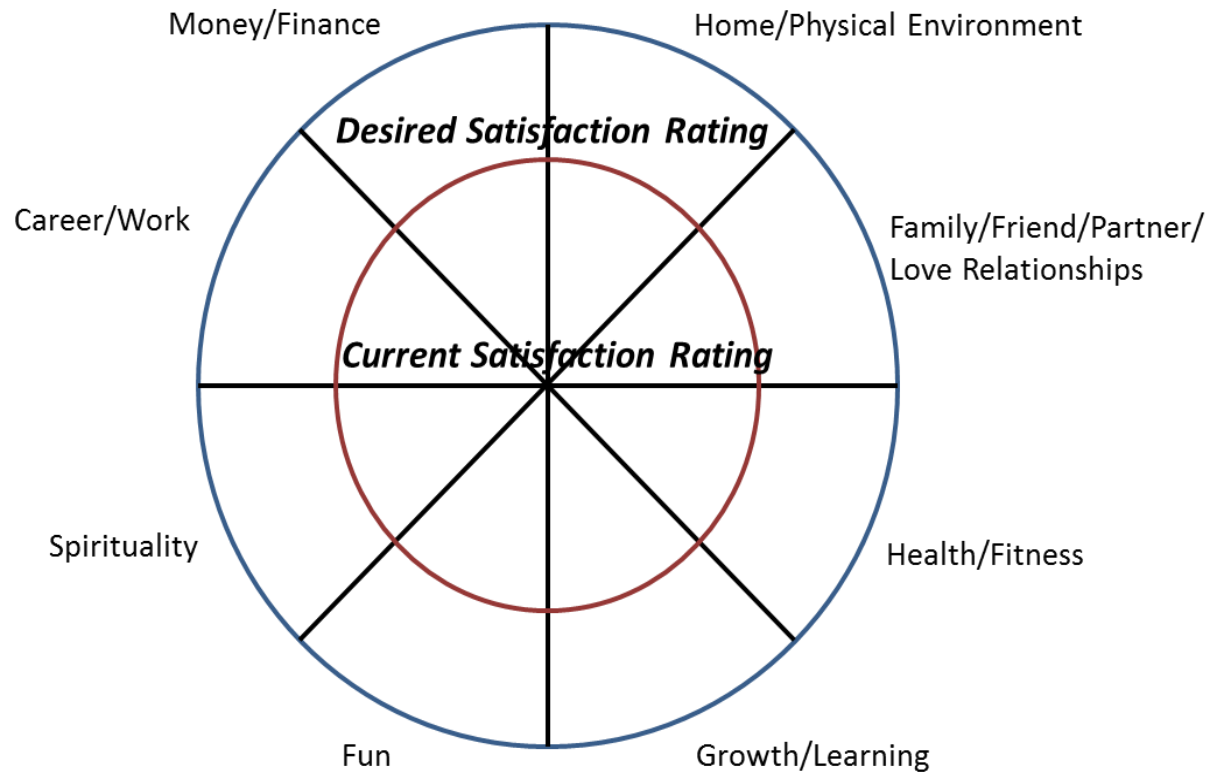
SupportNet Project

- **Questions:**
  - What websites do you like working with and why?
  - What concerns or fears do you have about using a web application?
  - Are there any internal limitations about access to external websites?

SupportNet Project

- Evaluating the Support System
  - Randomized controlled trial
  - External program evaluation

- **Question**:
  - What factors might prevent a Provider from participating in the trial?

SupportNet Project

- **Schedule of Upcoming Meetings**

  - Thursday, February 14, 2013 at 0930
  - Thursday, March 14, 2013 at 0930

UCCS — University of Colorado Colorado Springs

Fort Carson SupportNet Focus Group
February 14, 2013

Valerie Anderson, PsyD
SupportNet Program & Clinical Director
Judith Bock, PsyD
SupportNet Program Clinician & Advisor
Carrie Yeager, MS
Software Engineering Team

SupportNet Project

Update activities since our last meeting

- Evaluated currently available on-post resources
- Evaluated technology challenges with IT

Revised strategy to

- Prevent duplicating what already exists
- Expand our reach to other posts and community providers

SupportNet Project

- Currently Available Systems we reviewed
  - milSuite
  - Army Knowledge Online (AKO)
  - Sharepoint
  - Provider Resilience (Smartphone app)

SupportNet Project

Results of consultation with IT

- Accessibility: IT will help us assure that our site is available on-post

- We will be limited in the technologies we can use for interactive coaching

- We have a point of contact at EACH for further advice and guidance

- IT is supportive of this project

SupportNet Project

Coaching Process

Self- Assessment

Life Balance Assessment

Goal Setting

Social Support matching

Obtaining Support for Goals

Tracking Goals

Rewards

Coaching Strategy – Informed by Self-Assessment

Case: No STS or Burnout
- Life Balance Wheel
- Identify strengths and coping Strategies
- Focus on Work/Life Balance
- Set Goals

Case: Hi Work Engagement
- Life Balance Wheel
- Identify strengths and coping strategies
- Encourage mentoring others
- Set Goals

Case: Hi/Low Secondary Traumatic Growth
- Life Balance Wheel
- Identify strengths and coping strategies
- Encourage mentoring others
- Set Goals

Coaching Strategy – Informed by Self-Assessment

Case: Hi Secondary Traumatic Stress (<cutoff)	**Case: Hi Burnout (<cutoff)**	**Case: Hi STS *and* Burnout (<cutoff)**
Life Balance Wheel	Life Balance Wheel	Life Balance Wheel
Identify values and domains	Identify values and domains	Identify values and domains
Assess job demands and resources	Assess job demands and resources	Assess job demands and resources
Focus on work/life balance and coping strategies	Focus on work/life balance and coping strategies	Focus on work/life balance and coping strategies
Set Goals	Set Goals	Set Goals

SupportNet Home Page

SupportNet Provider Profile

SupportNet Project

Self Assessment

SupportNet Project

Self Assessment

1/15/2013: You report less traumatic stress than 66% of the population. This is good.

Take new Assessment
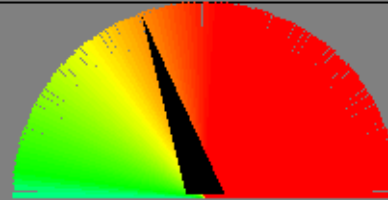
1/15/2013: You report less burnout than 78% of the population. This is good.

Take new Assessment

University of Colorado
Colorado Springs

SupportNet Project

Identifying Values and Goal Setting

SupportNet Provider Profile

Social Support Matching

SupportNet Project

- **Questions:**
  - **How and why are you using the systems you have available today?**
  - **What kinds of things would be valuable as "rewards" for achieving goals?**

SupportNet Project

Schedule of Upcoming Meetings

– Thursday, March 14, 2013 at 0930

UCCS University of Colorado
Colorado Springs

Fort Carson SupportNet Focus Group
April 11, 2013

Valerie Anderson, PsyD
SupportNet Program & Clinical Director
Judith Bock, PsyD
SupportNet Program Clinician & Advisor
Carrie Yeager, MS
Al Glock, PhD
Software Engineering Team

SupportNet Project

Update activities since our last meeting

- Evaluated currently available on-post resources
- Evaluated technology challenges with IT

Revised strategy to

- Prevent duplicating what already exists
- Expand our reach to other posts and community providers

SupportNet Project

- Currently Available Systems we reviewed
    - milSuite
    - Army Knowledge Online (AKO)
    - Sharepoint
    - Provider Resilience (Smartphone app)

SupportNet Project

Results of consultation with IT

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SupportNet Project

Coaching Process

Self- Assessment

Life Balance Assessment

Goal Setting

Social Support matching

Obtaining Support for Goals

Tracking Goals

Rewards

SupportNet Project

Demonstration

SupportNet Project

- **Questions:**

  - **Please provide feedback on what you've seen and heard today.**

SupportNet Project

Schedule of Upcoming Meetings

– Thursday, June 20, 2013 at 0930

UCCS University of Colorado Colorado Springs

Sample Screen Shots from the Web-based Intervention
Log In Page

Support Net   [Log In]

UNIVERSITY OF COLORADO TRAUMA HEALTH AND HAZARDS CENTER

Contact Us

Sample Screen Shots from the Web-based Intervention
Home Page

Sample Screen Shots from the Web-based Intervention
User Profile Page

Sample Screen Shots from the Web-based Intervention
User Profile Page – Professional Needs & Expertise

Sample Screen Shots from the Web-based Intervention
User Profile Page – Personal Areas of Need or Interest

Sample Screen Shots from the Web-based Intervention
Self-Assessment Module

Sample Screen Shots from the Web-based Intervention
Self-Assessment Module

Sample Screen Shots from the Web-based Intervention
Self-Assessment Module

Sample Screen Shots from the Web-based Intervention
Goal Setting Module

Sample Screen Shots from the Web-based Intervention
Goal-Setting Module with Social Support

Sample Screen Shots from the Web-based Intervention Resource Library

Sample Screen Shots from the Web-based Intervention Resource Library with Social Support

Support Net

Welcome **CtlystPtnr** ! [Log Out]

Home | Profile | Assess | Connect | Goals | Resources | Take 5 | Contact Us | About

Self-Care

Show Help

Home -> Resource Room -> Self-Care

Self-Care

Self-care means choosing behaviors that balance the effects of emotional and physical stressors: exercising, eating healthy foods, getting enough sleep, practicing yoga or meditation or relaxation techniques, abstaining from substance abuse, pursuing creative outlets, engaging in psychotherapy. Also essential to self-care is learning to self-soothe or calm our physical and emotional distress.

Discussions on Self-Care

Join Discussion

Anderson, Valerie   6/7/2013
I think that the stress-distress continuum is an important model for understanding how we can better serve our military trauma clients while Read More

Interesting Articles

Ethics, self-care and well-being for psychologists: Reenvisioning the stress-distress continuum
In this article, the authors discuss the emotional and psychological challenges of being a behavioral health provider and the need, as a profession, to more adequately
Read More

Integrating mindfulness as self-care into counselling and psychotherapy training
In this article, the authors examine the use of mindfulness as a tool of self-care in the training of behavioral healthcare professionals. Using qualitative designs
Read More

Self-care and Well-being in Mental Health Professionals: The Mediating Effects of Self-awareness and Mindfulness
In this article, the authors examined the role of mindfulness in the relationship between self-care and well-being in behavioral healthcare professionals. Building
Read More

Available Resources on Self-Care

Add Resource

UNIVERSITY OF COLORADO TRAUMA HEALTH AND HAZARDS CENTER

Contact Us

Sample Screen Shots from the Web-based Intervention Resource Library with Social Support

Participant Name: _____Length of Session: _____ (in minutes)   Date_____

Communication Method: _____Phone   _____Skype   _____ In Person

SupportNet
Coaching Manual
Supporting Behavioral Health Professionals
Providing Services to Military Members

Coaching is a systematic, goal-oriented process aimed at fostering the maintenance of sustained change through continual self-directed learning and personal growth (Grant, 2003).

SupportNet
Trauma, Health, and Hazards Center
University of Colorado Colorado Springs

Participant Name: _____Length of Session: _____ (in minutes)   Date_____

Communication Method: _____Phone   _____Skype   _____ In Person

Introduction

Coaching Manual

This coaching manual is specifically designed for use by licensed mental health providers for use in a research study funded by the Department of Defense. The coaching intervention outlined in this manual is based on the best current knowledge available to inform the development of the coaching program and the delivery of the coaching intervention to participants. It is a comprehensive approach based on best practices in moderating the effects of burn-out and secondary traumatic stress among military behavioral health providers. The coaching program consists of six sessions delivered over the phone, in-person, or through Telehealth capabilities. The sessions will occur over the course of eight weeks and will focus on using a web application to set and achieve life balance goals, improve self-care, improve awareness of secondary traumatic stress and burnout, improve social support, reduce stress, and increase work engagement.

General Guidelines
1. This manual is intended to be used as a reference and is not intended to be "strictly enforced."
2. Individual coaches are expected to use their professional judgment and experience when deciding which elements of this coaching manual will serve each participant's best interest.
3. Phrases that are italicized or in quotations are intended to be communicated by the coach to the participant at the coach's discretion (i.e., *"You are in control.")*
4. Suggestions for content to cover each session are provided. The coach should use discretion as to which areas need to be addressed and in what order they should be addressed.
5. Quotes are offered at the beginning of each coaching session and may be shared with the participant.
6. Questions / Strategies to facilitate the participant's engagement in the coaching process are provided for the first 3 sessions. Coaches may wish to utilize these approaches or may have other strategies they prefer to use. The best approach is the one that fosters the development of a trusting relationship between the coach and the participant where the participant feels valued and respected.
7. Each session, the coach should ask the participant about their level of self-care self-efficacy as outlined in each session of the manual.
8. The first coaching session should be scheduled for 60 minutes, followed by a 30-minute session weekly for 5 weeks.
   a. Participants will have a total of 8 weeks to complete all 6 sessions. We have scheduled 2 additional weeks to allow for holidays and rescheduling due to coach or participant needs.
   b. The amount of time allotted for each session is a general guideline and is not meant to be strictly enforced. If a participant needs more or less time, that is permissible, provided the coach documents the duration of the session (see header for each session).
9. Documentation: At the end of each session, the coach is provided with a "To Do" list. Please use Appendix H "Contact Log" and Appendix I "Data Sheet for Coaching Sessions 1-6" for documenting any deviations from the protocol and any individualized contact occurring in between coaching sessions.

Participant Name: _____Length of Session: _____ (in minutes)   Date_____

Communication Method: _____Phone _____Skype _____ In Person

Assessment

Pre-Coaching Checklist – For Coach

- ✓ Reviewed Assessment results

- ✓ Note score on STS pre assessment: _____ (scale 1 - 5)

- ✓ _____STS (mark if present and see Appendix A & B)

- ✓ Refer to behavioral health services if 4.0 or above on STS (see Appendix C)

  - ▪ Goals of Coaching Intervention become centered around taking care of self (in addition to enhancing self-care and social support) by seeking help from a behavioral health care specialist

- ☐ Scheduled first 60-minute coaching session to begin on: _____

- ☐ Verbal OK to contact client via:

  - ✓ Email: _____

  - ✓ Phone:_____

  - ✓ Text:_____

Coaches may find it helpful to review "Goals and Objectives of Coaching Plan" (see Appendix D)

Participant Name: _____Length of Session: _____ (in minutes)   Date_____

Communication Method: _____Phone   _____Skype   _____ In Person

Coaching Session 1— Enhancing Awareness
(Self-Awareness /Commitment)

*Self-care is a skillful attitude that needs practice throughout the day ~ **M. J. Mahoney***

Questions / Strategies (to use during coaching session):

1. *What do you see going on?*
2. *What would you do differently if nothing stopping you? / What's holding you back?*
3. *I can see that things [at work] are really difficult for you right now and yet you have still managed to _____. How have you done that?*

Coach: Please check each box representing what you were able to address this session:

☐ Focused on rapport-building (LISTEN to "their story" especially if STS present)
It is imperative that the coach validates and normalizes the participant's experiences. Reframing their reactions as being an indication that they are a dedicated and compassionate [provider]may be necessary if they are experiencing guilt or shame about their thoughts, emotions, or behaviors (Meichenbaum, 2007)

☐ Introduced coaching model *"You are in control!"*
  ✓ Reviewed Elements of Coaching
    ▪ *"Recognizing the nature of your work with military trauma, this is a workplace intervention to minimize / prevent job B/O, VT, STS and to increase work engagement"*
    ▪ "*You are responsible for your own processes and outcomes*" (see Appendix E-F)
    ▪ Focus is on gaining awareness
    ▪ Additional focus on the three S's (self-care, social support, self-efficacy)
      • Improve self-care
      • Increase social support
      • Help you feel more capable to handle work-related stressors
    ▪ Here to help AND to confront you when necessary

☐ Explained how to navigate web application
  ✓ Highlighted assessments (self-monitoring)
  ✓ Highlighted connections (social support)
  ✓ Highlighted goal-setting and take-5 (self-care)
  ✓ Highlighted library resources
  ✓ Referred participant to tech team if they requested additional support

☐ Reviewed assessment results with participant
  ✓ Invited participant to share their perceptions of the assessment results
  ✓ Focused on strengths
  ✓ Explored with participant their understanding of burnout
  ✓ Explored with participant their understanding of STS (if applicable)
  ✓ Offered clarification and information as needed

☐ Encouraged participant to take steps toward developing a network of social support

☐ Promoted specific self-care strategies for healthy lifestyle

Participant Name: _____Length of Session: _____ (in minutes)   Date_____

Communication Method: _____Phone   _____Skype   _____ In Person

Coaching Session 1 (cont):

- ☐ Assigned Homework
    - ✓ Complete user profile
    - ✓ Explore web application and establish online social support connections
    - ✓ Complete the Life Balance Wheel (see Appendix G)

- ☐ Negotiate level of coach support and contact in between sessions (see Appendix H for log)

- ☐ Assessed current levels of <u>self-care self-efficacy</u>: *"Reflecting on your current situation, on a scale of 1 (not at all confident) to 10 (100% confident), how confident are you that you can establish self-care goals?"*

    Low   1   2   3   4   5   6   7   8   9   10   **High**

- ☐ Coach To Do:
    - ✓ Complete Goal Survey – see Appendix I for Session 1-6 Goals

Participant Name: _____Length of Session: _____ (in minutes)   Date_____

Communication Method: _____Phone   _____Skype   _____ In Person

Coaching Session 2--Goals / Challenge
Goals for Success

"If you don't know where you are going, you'll end up someplace else." ~ ***Yogi Berra***

"It is not enough to take steps which may someday lead to a goal;
each step must be itself a goal and a step likewise."
~ Johann Wolfgang von Goethe

Questions / Strategies:

1. *What are your non-negotiable beliefs and values? How developed? When, where, challenged? (Kemp, 2005)*
2. *How would life be different for you if [target life balance area] were more balanced?*
3. *What would you do differently if nothing stopping you?*

Coach: Please check each box representing what you were able to address this session:

☐   Reviewed Homework
  ✓   Explore and establish online social support network
  ✓   Complete the Life Balance Wheel (Appendix G)

☐   Explored Life Balance strengths and impact areas
  ✓   Relationship to burnout (and STS)
  ✓   Relationship to self-care (boundaries)
  ✓   Relationship to social support (connecting with others)
  ✓   Role of values in influencing targeted life balance area and goals

☐   Facilitated participant choosing <u>ONE</u> life balance area to focus on (values driven)

☐   Explored participant knowledge base and experience with setting achievable goals
  ✓   Provided suggestions as needed (i.e., design STEPS that are 99% achievable; include rewards for progress along the way)
  ✓   Emphasized importance of incorporating self-care and social support
  ✓   Shared resources on web application to assist with goal development (i.e., behavioral intentions)

☐   Supported participant process of identifying and utilizing specific self-care strategies (promoting healthy lifestyle)

☐   Supported participant process of developing a network of social support

☐   Assigned Homework
  ✓   Read content section about goals and goal setting (if appropriate)
  ✓   Identify and enter online 1-2 goals for life balance domain of choice (include self-care and social support and identified accountability partner)
  ✓   Action!!!

Participant Name: _____Length of Session: _____ (in minutes)   Date_____

Communication Method: _____Phone   _____Skype   _____ In Person

Coaching Session 2 (cont):

- ☐ Assessed current level of self-care self-efficacy: *"How confident are you that you can establish self-care goals?"*

   Low   1   2   3   4   5   6   7   8   9   10   **High**

- ☐ Coach to Do:
  - ✓ Complete Goal Survey – see Appendix I for Session 1-6 Goals
  - ✓ Send an encouraging message to your participants this week

Participant Name: _____Length of Session: _____ (in minutes)   Date_____

Communication Method: _____Phone _____Skype _____ In Person

Coaching Session 3--Goals / Challenge
Overcoming Obstacles

"Obstacles are those frightful things you see when you take your eyes off your goals."
~ Henry Ford
"Challenges are what make life interesting and overcoming them is what makes life meaningful."
~ Joshua J. Marine
"Whether you think you can, or you think you can't—you're right." ~ Henry Ford
"When everything seems to be going against you,
Remember that the airplane takes off against the wind." ~ Henry Ford

Questions / Strategies:

1. *"Why did you become a behavioral health provider?"*
2. *"Describe your most significant professional achievement to date." "What made it significant?" (Kelp, 2005)*
3. *How have you overcome past challenges?*
4. *What have been your most rewarding/difficult personal challenges?*
5. *How do you need to be thinking and perceiving differently to accomplish your goals? (Kemp, 2005)*
6. *What would you do differently if nothing stopping you?*

Coach: Please check each box representing what you were able to address this session:

☐ Reviewed Homework
   ✓ Read content section about goals and goal setting (if appropriate)
   ✓ Identify and enter online 1-2 goals for life balance domain of choice (include self care and social support and identified accountability partner)
   ✓ Action!!! How did it go???

☐ Supported the client in identifying their needs *"How can I help/support you?"*

☐ Explored with participant potential obstacles to goal achievement
   ✓ Challenged participant's potential problematic core beliefs / cognitive distortions
   ✓ Encouraged realistic expectations of self and others
   ✓ Explored with participant strengths and successes when facing past challenges
   ✓ Supported participant in leveraging strengths to overcome obstacles

☐ Facilitated development of plan for overcoming obstacles
   ✓ Encourage development of strategies to promote goal attainment such as:
   ✓ Self-regulation techniques (monitor goal steps, evaluate goal progress, modify goal/steps as needed)
   ✓ Refined goals if necessary
   ✓ Reviewed role of three S's (social support, self-care, self-efficacy) in overcoming obstacles

☐ Reminded client to *"Celebrate your accomplishments!"*
   ✓ Role of rewards
   ✓ Social posts (form of support)

Participant Name: _____Length of Session: _____ (in minutes)   Date_____

Communication Method: _____Phone   _____Skype   _____ In Person

Coaching Session 3 (cont):

☐ Assigned Homework
- ✓ Monitor, evaluate, modify (practice self-regulation)
- ✓ Refine/modify goals online
- ✓ Revisit self-assessment (if relevant)

☐ Assessed current level of <u>self-care self-efficacy</u>: "*How confident are you that you can achieve your self-care goals?*"

Low   1   2   3   4   5   6   7   8   9   10   **High**

☐ Coach To Do:
- ✓ Complete Goal Survey – see Appendix I for Session 1-6 Goals

Participant Name: _____Length of Session: _____ (in minutes)   Date_____

Communication Method: _____Phone   _____Skype   _____ In Person

Coaching Session 4-5 – Action / Support

Knowing is not enough; we must apply. Willing is not enough; we must do."
~ Johann Wolfgang von Goethe

Coach: Please check each box representing what you were able to address during these sessions:

☐ Reviewed Homework:
- ✓ Monitor, evaluate, modify (practice self-regulation)
- ✓ Refine/modify goals online
- ✓ Revisit self-assessment (if relevant)

☐ Encouraged participant to be aware of stress indicators and to practice daily self-care strategies
- ✓ Self-monitor (awareness of personal emotional, physical, behavioral indicators of stress)
- ✓ Stress Reduction Techniques
    - ▪ Take 5
    - ▪ practice mindfulness and acceptance
    - ▪ relaxation
    - ▪ meditation
    - ▪ visualization
    - ▪ journaling

☐ Continue to encourage development of strategies to promote goal attainment such as:
- ✓ Self-regulation techniques (monitor goal steps, evaluate goal progress, modify goal/steps as needed)
- ✓ Three S's-social support, self-care, self-efficacy

☐ Praised participant for each step taken thus far

☐ Assigned Homework (highly individualized at this point)

- ✓ Identify and implement daily *brief* self-care strategy of choice
- ✓ Monitor, evaluate, modify (practice self-regulation)
- ✓ _____

☐ Assessed current level of <u>self-care self-efficacy:</u> *How confident are you that you can achieve your self-care goals?*

Low   1   2   3   4   5   6   7   8   9   10   **High**

☐ Coach To Do:
- ✓ Complete Goal Survey – see Appendix I for Session 1-6 Goals

Participant Name: _____Length of Session: _____ (in minutes)   Date_____

Communication Method: _____Phone   _____Skype   _____ In Person

Coaching Session 6 –Empowerment

"If we are facing the right direction, all we have to do is keep on walking."
~Zen Proverb
"...you have endless ability and unlimited potential, so make your move,
start unleashing it and living your dream!!!"
~ Ricardo Housham

Coach: Please check each box representing what you were able to address this session:

☐ Reviewed Homework:
  ✓ Identify and implement daily *brief* self-care strategy of choice
  ✓ Monitor, evaluate, modify (practice self-regulation)
  ✓ _____

☐ Successes reviewed

☐ Discussed how to apply to other life domains

☐ Encouraged participant to complete the Time2 survey.

☐ Informed participant that web application will be available for 2 additional months

☐ Assessed level of self-care/self-efficacy: "*How confident are you that you can make your self-care changes a long-term part of your lifestyle?*"

Low   1   2   3   4   5   6   7   8   9   10   **High**

☐ Coach to Do:
  ✓ Complete Goal Survey – see Appendix I for Session 1-6 Goals
  ✓ Provide research team with completed Data Sheet for Goals Session 1-6 (Appendix I)
  ✓ Please notify research team to send Time2 email link

Participant Name: _____Length of Session: _____ (in minutes)   Date_____

Communication Method: _____Phone   _____Skype   _____ In Person

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SupportNet Evaluation Literature Review (DRAFT)

Robert Durham

Marisa Teel

Michelle Gaumond

Arjun Bhalla

University of Colorado, Colorado Springs

Abstract

Psychologists treating military patients are currently at risk for burnout, secondary traumatic stress, and compassion fatigue. These problems are defined both generally and within the context of treating individuals who have experienced combat trauma. The literature review aims to identify the interventions for burnout and compassion fatigue both within the military and in other related fields. The scarcity of empirical literature on military interventions and the absence of program evaluations within the military demonstrates the present need for empirical research to be conducted in this area. Evaluations of relevant mental health interventions are also discussed to provide a framework for our developing evaluation plan. Measures used to assess the effectiveness of the SupportNet intervention are discussed. Implications for the SupportNet intervention for primary caregivers within the military are discussed in light of the literature and research.

Wounded soldiers have been returning from wars for millennia. While physical injuries have always been treated with the utmost urgency and care, the United States military has only recently come to recognize or treat battle-related psychological problems. It was not until the first Gulf War that post-traumatic stress disorder (PTSD) was recognized as a mental disorder with soldiers. Treatments for PTSD have progressed dramatically in the past twenty years, and several evidence-based treatments are currently endorsed by the U.S. military. To this end, the technology of today offers a unique opportunity to provide treatment for returning soldiers as well as provide support for the caregivers who treat them.

In treating clients with combat trauma, mental health professionals listen to recounts of uniquely horrific traumatic events. The following review first defines these interrelated constructs and how they affect military mental health providers. Interventions that have addressed the problems of burnout, secondary traumatic stress (STS), or compassion fatige (CF) in caregiving professions are outlined, followed by interventions to date that address these problems within the military. Demonstrating the need for empirical evaluation, there are very few programs evaluated on this topic. Process and outcome evaluations to date are summarized as well as measures used to assess the effectiveness of similar or related interventions.

Occupational Obstacles for Caregivers

Individuals working in human service fields come in contact with certain occupational dangers or side effects. Several terms have been used to label the resulting stress and coping difficulties experienced by some mental health professionals, including vicarious traumatization (VT), secondary traumatic stress (STS), compassion fatigue (CF), and burnout (McCann & Pearlman, 1990; Figley, 1995). While many avenues are being explored to help human service workers avoid these occupational hazards, mental health providers face special challenges that are unique to their positions. Evaluations of relevant programs are sparse and even absent in terms of military caregivers.

Burnout

Everyone experiences some level of stress at work; however, some occupations expose employees to stress and possibly dangerous situations more than others. For the individual who may be experiencing an extensive amount of stress at work or who is employed in a higher stress job, burnout may occur. Burnout is a complex idea that has been defined in several different ways throughout the years and has symptoms ranging from mild distress to severe depression (Meldrum, 2010). Others define it as emotional exhaustion accompanied by depersonalization, alienation and lack of personal accomplishment (Le Blanc, Hox, Schaufeli, Taris & Peeters, 2007; Lee, Lim, Yang, & Lee, 2011; Linnerooth, Mrdjenovich, & Moore, 2011). Emotional exhaustion has been defined as feeling overextended and exhausted emotionally and physically, and it seems to correlate with high work demands, general work stressors and feelings of having to "deaden one's conscience" (Glasberg, Eriksson, & Norberg, 2007, p. 392). Depersonalization refers to beginning to feel negative, callous, detached, or cynical in response to coworkers and clients and their situations (Newell & MacNeil, 2010). Lack

of personal accomplishment means a decline in feelings of competence and productivity while at work (Halbesleben & Demerouti, 2005). Burnout can cause a great deal of distress in clinicians, it can create conflicts in their personal lives, and it may reduce their capacity to perform their job effectively (Meldrum, 2010; Newell & MacNeil, 2010).

Factors that have been shown to contribute to burnout are high workloads, obscure job requirements or role at work, feelings of loss of control at work, lack of social support and certain personality characteristics (Glasberg, Eriksson, & Norberg, 2007). Social support, setting boundaries, and a feeling of internal locus of control were shown in one study to account for 74% of the variance between clinicians who did and did not experience burnout (Killian, 2008).

Many different human service workers are at high risk of burnout, but clinical military psychologists and other military mental health care providers currently have a very high risk for burnout due to the increasing numbers of soldiers returning from combat who need mental health services. The influx of soldiers requiring treatment along with the ordinarily higher stressors and unique job requirements that these clinicians experience puts them in greater danger of burnout (Linnerooth, Mrdjenovich, & Moore, 2011). While these issues have been acknowledged and addressed in literature, there is a paucity of empirical data concerning burnout, its consequences, or its treatment within the population of military clinicians.

Vicarious Traumatization

In addition to burnout, working with traumatized clients, particularly military personnel, presents additional risks to psychologists. McCann and Pearlman (1990) coined the term "vicarious traumatization" (VT) to describe the changes in cognitive

schemas, views of the world, and personal relationships that clinicians may experience as a result of trauma therapy. Repeated empathic engagement with clients' traumatic experiences may result in disruptions to the therapist's experience of self, others, and the world (Pearlman & MacIan, 1995). Effective trauma treatment typically involves the patient describing the traumatic experiences in detail in order to process and work through them. As a result, in helping trauma survivors, therapists listen to graphic stories of combat experiences, and are confronted with harsh examples of people's cruelty to one another (Pearlman & Saakvitne, 1995). Specifically, a high percentage of combat infantry members returning from Iraq and Afghanistan report handling dead bodies, knowing someone who was killed or injured, killing an enemy combatant, and seeing ill or injured women or children whom they were unable to help (Hoge, Castro, Messer, McGurk, Cotting, & Koffman, 2004).

Secondary Traumatic Stress

Secondary traumatic stress (STS) describes how those who try to help traumatized individuals may experience significant emotional disruption and may themselves become indirect victims of the trauma (Figley, 1995). As a result, STS is increasingly becoming recognized as an occupational hazard to professionals who interact directly with traumatized individuals (Bride, Robinson, Yegedis & Figley, 2004). While VT and STS are clearly related to one another, they can be distinguished in that VT refers to cognitive changes, while STS refers to the manifestation of PTSD-like symptoms (Voss Horrell, Holohan, Didion, & Vance, 2011). Through secondary exposure, social workers can experience symptoms that closely resemble the symptoms of PTSD caused by direct exposure to traumatic events (Figley, 1999). Similar to PTSD, symptoms of STS include

intrusive recollection (e.g., repeatedly thinking about clients experiences or having disturbing dreams related to work with clients), avoidance (e.g., wanting to avoid working with some clients, avoiding people, places or things that are reminders of work with clients), hyperarousal (e.g., feeling jumpy, feeling easily annoyed, having difficulty sleeping), and feeling emotionally numb (Bride et al., 2004). Secondary traumatic stress disorder (STSD) is nearly identical to PTSD except that the stressor is experienced vicariously.

Compassion Fatigue

Figley (1995) introduced the term compassion fatigue (CF) as a more "user-friendly" term to describe STSD. In addition to the symptoms for STS described above, CF is characterized by reduced capacity or interest in being empathic (Figley, 1995). Because being empathic is considered by most to be crucial component in building a therapeutic alliance, CF likely negatively affects clinicians' ability to do their job. Compassion fatigue contains both elements of STS and burnout, and accordingly, measures of CF contain submeasures for STS and burnout (Adams, Boscarino, & Figley, 2006). According to Figley (2002), several variables contribute to the development of compassion fatigue, including empathic ability, empathic concern, exposure to the client, empathic response, compassion stress, sense of achievement, disengagement, prolonged exposure, traumatic recollections, and life disruption. The applications of Figley's model is addressed below.

Interventions

In the following section, we discuss mental health interventions aimed to reduce burnout, STS, and CF among human service workers in general, and specifically within

the military. Web-based mental health interventions are described and recommendations are proposed. Finally, mental health interventions within the military are analyzed in detail, both those involving face-to-face communication and online interventions.

Burnout Intervention in Medical Fields

In addition to military mental health care providers, physicians and other professionals working in human services field (e.g. social workers, nurses, and caretakers for the elderly) also experience high rates of burnout. One population that is experiencing burnout is oncology care providers.

To reduce burnout among oncology care providers, Killian (2008) developed a team-based burnout intervention and tested its effectiveness using a pre-test, post-test design (Killian, 2008). The intervention itself included a training manual, counseling sessions to inform about self care and ways to avoid burnout, and social support. The results showed the intervention succeeded in significantly decreasing participant's feelings of depersonalization and emotional exhaustion. This study claims quite a few limitations and suffered from high attrition in the experimental group (Le Blanc, Hox, Schaufeli, Taris, & Peeters, 2007).

STS Intervention for Well Baby Nurses

Another intervention aimed to reduce secondary trauma among Israeli well baby clinic nurses through increasing self-efficacy (Berger and Gelkopf, 2011). In this study, 90 nurses were randomly assigned to a control group (wait-list group) or experimental group (intervention group). The intervention group was asked to attend 12 weekly six-hour group sessions in which they would receive education on self-efficacy practices and would participate in group discussions. None of the nurses who began the program

finished all 12 session. The results of the study showed that the participants in the experimental group showed a significantly greater reduction on self-report measures of STS as well as elevated scores on professional self-efficacy.

Internet Interventions

With the increasing utility of technology in our everyday lives, the development of internet interventions has grown rapidly over the past decade. Several programs have been launched to treat a variety of mental health problems, including alcohol addiction, stress management, PTSD, anxiety and depression (Hirai & Clum, 2005; Lange et al., 2001; Litz et al, 2004; Williams, Hagerty, Brasington, Clem & Williams, 2010). Internet interventions hold a great deal of potential for reaching a wider scope of individuals who may not otherwise seek mental health treatment; several barriers to seeking traditional in-person therapy include monetary constraints, scheduling difficulties, lack of available providers within the geographic area (especially in rural areas), and the stigma associated with mental health issues. Empirically supported internet interventions will next be discussed followed by descriptions of military internet interventions that have yet to be evaluated empirically.

Interventions for PTSD. Internet interventions for traumatic stress have shown encouraging results (Benight, Ruzek, and Waldrep, 2008). Several online interventions have proven efficacious in reducing symptoms of PTSD in non-military participants (Hirai & Clum, 2005; Lange et al., 2001; Litz et al., 2004).

In a recent meta-analysis of telehealth interventions Sloan, Gallagher, Feinstein, Lee and Pruneau (2011) found that telehealth interventions produced large and significant effect sizes in reducing PTSD symptoms compared to wait-list control groups ($d = 1.01$,

p < .001). However, the mean effect size for telehealth treatments showed it to be significantly less effective than face-to-face interventions for trauma treatment. These findings suggest that face-to-face trauma treatment is more effective than telehealth interventions for PTSD; however telehealth interventions produce meaningful reductions in PTSD symptoms, and therefore would be preferable to no treatment for individuals impeded by barriers to seeking traditional face-to-face psychotherapy. Of the studies included in the meta-analysis that reported pre- and post-treatment measures of PTSD symptoms, the mean within-groups effect size was large and statistically significant; although these results suggest that telehealth interventions result in large reductions in PTSD symptoms, Sloan et al. caution that they calculated a significant *Q* statistic which indicates that the effect sizes in the analyses were heterogenous.

One noteworthy randomized control trial (RCT) included in the previous meta-analysis delivered internet-based CBT to military participants with combat-related PTSD (Litz, Engel, Bryant, & Papa, 2007).   The study compared an online therapist-assisted self-management CBT intervention to an internet-based supportive counselling control and found that those who received the self-management CBT intervention reported greater reductions in PTSD symptoms and one-third reported high end-state functioning at six-month follow-up (Litz et al., 2007). Based on the promising results internet interventions have shown in treating PTSD, the military launched its own site to address the challenges faced by soldiers returning from deployment.

Afterdepoloyment.org. The DoD launched the website afterdeployment.org (AD) to accomplish two goals: (1) to provide online tools for early diagnosis and treatment of PTSD for military and civilian health care providers, and (2) to assist

military family members in identifying PTSD (Rucek, Hoffman, Cuilla, Prins, Kuhn & Gahm, 2011). AD includes online assessments for 29 post-deployment issues. The site is directed toward military service members, their families, veterans, and providers working with the military community. AD provides comprehensive information on 18 topic areas, including PTSD, mild traumatic brain injury, alcohol and drugs, health and wellness, and resilience. For each topic, AD contains videos, self-directed workshops with interactive exercises, and links to relevant resources. Users may work at their work at their own pace and access resources privately and conveniently anytime; AD can be accessed 24 hours everyday, which increases the timeliness of treatment since individuals do not have to wait for an appointment (Rucek et al., 2011). Given the stigma associated with seeking mental health care, internet interventions may appeal to many service members and veterans who would not otherwise seek help, and AD it provides confidential, non-stigmatizing support

 (Rucek et al., 2011).

Although AD was developed as a self-care resource for service members and veterans, the Provider Portal has become one of the most visited areas of the website (Bush, Bosmajian, Fairall, McCann & Cuilla, 2011). Providers can improve upon their knowledge of PTSD, truama, and military culture as well as access links to continuing education materials, training, and clinical practice guidelines developed by the VA (Rucek et al., 2011). In this way, AD functions as a supplement to more traditional in-person therapy by assisting the providers in treating military service members. According to Bush et al. (2011), AD intends to add self-care resources for health care providers to address the problems of burnout and STS. However, the site does not appear

to have incorporated these tools yet. Afterdeployment.org undoubtedly has great potential to help military service members and mental health care providers.

Mental Health Provider Interventions

More recently, the struggles of mental health providers have been recognized both outside and within the context of the military. The Accelerated Recovery Program (ARP) was developed to address CF through a systematic intervention that includes offering therapy to the therapists experiencing symptoms. The Certified Compassion Specialist Training builds off of ARP and utilizes a "training as treatment" model to train individuals in recognizing and treating CF among their colleagues. These mental health provider interventions are discussed in detail below.

Accelerated Recovery Program. Developed by the Traumatology Institute at Florida State University, the Accelerated Recovery Program (ARP) aims to address the issue of compassion fatigue by helping clinicians to regain functioning in their personal and professional lives and to positively reinforce their future in their profession. The ARP helps caregivers to resolve the symptoms and causes of compassion fatigue as well as develop a self-care plan to promote resiliency and provide protection against future compassion fatigue (Gentry, Baranowsky, & Dunning, 2007).

The ARP consists of a standardized treatment over five sessions. The goals of treatment, called the four pathways to recovery, include skills acquisition, self-care, internal conflict resolution, and connection with others (Gentry et al., 2007). Caregivers are asked to tell their story, and an inventory is taken of the experiences which have accumulated to produce CF. Additionally, caregivers are asked to recall specific situations which function as triggers of their CF. Also, the caregiver is encouraged

reconnect with the hope and empowerment felt earlier in their career. Relaxation skills are taught as well, including a progressive relaxation exercise and a safe-place visualization (Gentry & Schmidt, 1996).

In the third session, the caregivers discuss their professional goals, personal goals, primary and secondary trauma, silencing response, and trajectory of hope. Vicarious trauma situations that trigger CF for the caregiver are reviewed and the caregiver reviews self-regulation strategies for handling such situations (Gentry et al., 2007). Eye Movement Desensitization Reprocessing therapy (EMDR) may be used as well. The caregiver and therapist develop a self-care plan. They are asked to identify areas where they need professional skill development and contract to take the necessary steps to acquire these skills. The therapist reads a letter form "The Great Supervisor" which includes things that the professional most needs and wants to hear from his or her supervisor; later the caregiver is asked to read this letter aloud on videotape.

Although promoted at a conference in Quebec, the Accelerated Recovery Program does not yet have empirical published results evaluating its efficacy. It draws upon several already known treatments, including time-limited trauma therapy, thought field therapy, eye-movement desensitization reprocessing (EMDR), video-dialogue, visual/Kinesthetic dissociation, and hypnotherapy (Gentry et al., 2007).

The accelerated recovery program was initially tested among a small sample of caregivers ($n = 10$) who provided assistance to survivors of the 1995 Murrah Building bombing in Oklahoma City; the sample included chaplains, psychologists, and emergency services personnel. Gentry and Baranowsky (2002) found that the ARP resulted in significant reductions in scores on the compassion fatigue and burnout

subscales of the Compassion Satisfaction/Fatigue Self-Test (Figley, 1995) from pretest to posttest, and compassion satisfaction subscale scores increased. In order to determine the merit of ARP, empirical research must determine its effectiveness. Furthermore, ARP consists of a myriad of different treatments, and it could be improved by disseminating the most important elements and devoting more energy to those significant parts.

Certified Compassion Fatigue Specialist Training (CCFST). In response to the accelerated recovery program, the CCFST was developed in order to provide comprehensive training to professionals to help other caregivers suffering from compassion fatigue (Gentry, Baggerly, Baranowsky, 2004). This comprehensive training program seeks to teach professionals how to implement the ARP and has the added benefit of "training-as-treatment" effect, whereby the education and training help caregivers to recognize and prevent CF in themselves (Gentry et al., 2004). The participants received training over the course of two days, were given pre- and post-tests of the compassion satisfaction/fatigue self-test (CSFST; Figley, 1995), and demonstrated reductions in CF and burnout as well as increases in compassion satisfaction (Gentry et al., 2004). This concept of "training-as-treatment" may have merit as a way to train participants both to treat others with compassion fatigue as well as provide treatment to those participants who are suffering with CF themselves. In this way, the CCFST may have the added benefit reaching professionals who may otherwise not seek help themselves. Because this study was not published and has yet to be replicated, additional research is necessary to determine if CCFST can be deemed an effective treatment in itself and if it provides the added benefit of treating the professionals who participate. However, the CCFST program is noteworthy in that it endorses and teaches clinicians

how to implement the ARP; additionally, the CCFST program provides education and skills to clinicians to improve awareness, prevention, and treatments for CF.

Military Health Provider Interventions

The Army initiated its Provider Resiliency Training (PRT) program to combat burnout and compassion fatigue among health care providers in the military. Additionally, one Army hospital developed its "Care for the Caregivers" program which provides a respite room for its staff. These interventions are outlined below.

Care for the Caregivers. Brooke Army Medical Center at Fort Sam Houston, Texas has launched their "Care for the Caregivers" program in an effort to address the related problems of secondary traumatic stress and burnout. The program combines prevention training and treatment, including seminars and stress-management techniques (Wilson, 2008). Furthermore, the facility has built a relaxation room at the hospital to demonstrate their appreciation and caring for the caregivers at Brooke hospital. This respite room provides a place caregivers can temporarily escape the stresses of work. It is furnished with comfortable chairs, soothing music played through high quality sound-system, and dim lighting to promote relaxation (Wilson). While the respite room and training may provide some benefit to the employees at Brooke Hospital, there has yet to be any assessment of how the program is going or empirical data measuring the program's effectiveness.

Army Provider Resiliency Training. Launched in July, 2008, the Army Provider Resiliency Training (PRT) initiative intends to address the issues of CF and burnout among Army Medical Department mental health providers (Boone, Camarillo, Landry & DeLucia, 2008). The Army PRT program consists of three phases. In the first

phase, providers are given the Professional Quality of Life Inventory (ProQoL) and given immediate feedback on his or her current levels of compassion satisfaction, compassion fatigue, and burnout. Also in the first phase, providers watch a "brief, but extremely important, PRT video which sets the stage for one's ongoing self-care response to the inevitable challenges to well-being brought on by difficult work" (Boone et al., p. 59).

Phase two involves education about the signs of compassion fatigue (which is called "provider fatigue") as well as strategies to enhance compassion satisfaction (called "provider resiliency"). These terms were determined to be more in tune with military terminology. Also in phase two, the health care provider discusses the meaning of the ProQOL results and outlines their personal self-care plan.

The last phase involves a ProQOL reassessment and making any adjustments to the self-care plan. Throughout the program, PRT trainers should be easily accessible and available to address providers' questions or concerns related to provider fatigue, burnout, or the self-care plan (Boone et al., 2008). Recognition of military healthcare providers' need for such services to address the problems of compassion fatigue, burnout, and overall quality of life is a significant first step. However, to date, there does not seem to be any ongoing assessment or evaluation of the program and its effectiveness. In order to improve and build upon the Army PRT program, empirical research and formal evaluation techniques are needed. To ensure the Provider Resiliency Training provides the help it intends, ongoing formal evaluation will be necessary to recalibrate its efforts and improve upon the program's effectiveness.

Program Evaluation

Program evaluators are an essential component to any project team. Their assistance can assure that the milestones of a program and its ultimate goals are being met. Program evaluations ensure that the concerns and wishes of the interested and affected parties (i.e., stakeholders) are addressed using the best possible application processes and methodology (Morris, 2010). This is done through careful evaluation of the literature that pertains to the program or project, and then correctly applying this to the program that is being evaluated in terms of the assessment of needs, the processes used to address these needs, the outcome of the application of these processes, the impact and outcome for the stakeholders, and in determining the fiscal requirements and plausibility of supporting the program financially. These responsibilities must be carried out with the utmost ethical standards in order to ensure the proper treatment of stakeholders and to offer meaningful contributions to the project (Taut & Brauns, 2003; Stake & Mabry, 1998; Morris, 2010).

Need for Program Evaluation

Program evaluators may not always be viewed as important and could also sometimes be feared. It is easy to understand that people may become so focused on their program and their goals that they never actually stop to see if they are accomplishing what they set out to accomplish. It has been documented that program staff are usually the ones who put forth the most resistance to evaluators starting with those who have the most commitment to the project. This resistance is said to be due to the reactance of the program staff and power struggles when trying to take into account the needs of all stakeholders (Taut & Brauns, 2003).

Program evaluations can be a great tool for anyone wishing to start a new program or determine the effectiveness of an existing program; they are the check and balance system. Assuring that everyone that has a stake in the project is accounted for and addressed and that all objectives are being met with the best possible instruments and methods used. Evaluators have no vested interest in the project and therefore may be able to be more objective. Evaluators should be viewed as less of a threat and rather as essential piece to any program development team.

Stakeholders

Stakeholder participation in the process of implementing a new program or in intervention method is a critical aspect and should be considered by any evaluator or program team (Morris, 2010; Taut & Brauns, 2003; Van Vorhees et. al., 2007). As with any team effort or project, conflicting ideas and hopeful outcomes may arise. Resistance may also be encountered throughout the evaluation process (Greene, 1988; Taut & Brauns, 2003), this is sometimes due to previous negative experiences in utilizing program evaluations and several different human aspects (e.g. conflicting power relations, conflicts of interest, and competition). Resistance may results in lack of utilization of the evaluation and it suggestions (Greene, 1988; Taut & Brauns, 2003). Greene (1988), maintains that stakeholder participation and utilization is one of the most important considerations for program developers and evaluators in order to maintain helpful evaluation practices and to ensure long term success of the project (Greene, 1988). Resistance can and should be overcome in the interest of the project outcome and in order to maintain sound practice. To ensure these two ideas, it is important to identify and

entertain all stakeholder interests (Greene, 1988,Taut & Brauns, 2003). This practice
allows for more powerful program outcomes.

Needs Assessment

Process evaluation

Process evaluation aims to determine the extent to which the intervention is being
delivered and implemented according to plan. During the development and
implementation stages of the program, process evaluators use systematic measurement to
assess how well the program is meeting its specified goals, the extent to which the
program is reaching the intended target group, and how satisfied participants are with the
program. Steckler and Linnan (2002) specified seven components to be measured and
evaluated in process evaluations of public health interventions, including context, reach,
recruitment, dose delivered, dose received, fidelity to treatment, and implementation.
Context refers to aspects of the larger social, political, and economic environment that
may influence implementation of the intervention (Steckler & Linnan, 2002). Reach
refers to the proportion of the target population that participates in the intervention.
Relatedly, recruitment refers to procedures used to attract participants, and it can occur at
the individual and organizational level. Dose delivered means the amount of intended
units of the intervention provided to participants, whereas the dose received refers to the
amount of units of the intervention participants were actually exposed to. Said differently,
the dose received represents the extent to which participants actively engage in the
intervention and interact with the delivered intervention components. Fidelity means the
extent to which the intervention was delivered as intended, and represents a measure of

quality and integrity of the intervention as planned by its developers (Steckler & Linnan, 2002). Finally, the implementation of the intervention reflects the extent to which the intervention has been applied and received by the target population.

Using the framework developed by Steckler and Linnan (2002), a review of process evaluations for workplace stress management interventions found that most commonly described components of program evaluation are recruitment, reach, dose received, and participants' attitudes toward the interventions (Murta, Sanderseon, & Oldenburg, 2007). Based on their findings, Murta et al., (2007) recommend obtaining support and involvement from managers and supervisors, for this factor was found to be related to better implementation of the stress management intervention and increased likelihood of achieving the outcomes of interest. Additionally, Murta et al., suggest delivering a larger "dose" of the intervention at a time, promoting a warm and safe climate for those participating in the intervention, and frequently monitoring participants' attitudes toward the intervention and its effects. Van Voorhees et al. (2007) used similar process evaluation methodology in the development of an intervention program that utilized both primary care and internet components to to prevent and treat depression in young adults.

South, Darby, and Bagnall (2010) used quantitative and qualitative research methods in their process evaluation of a community-based self-care training program. Qualitative methods, such as interviews and focus groups, can supplement quantitative outcome measures and lead to deeper understanding of the processes and contextual factors influencing outcomes. In assessing whether implementation is successful, reach

and access are key components to consider, as well as the acceptability and

appropriateness of the intervention with different stakeholder groups (South et al., 2010).

Outcome evaluation

Outcome evaluation involves use of statistical methods to determine treatment

effectiveness on the target group. Quantitative outcome measures taken at different times

before and after the intervention allows researchers to assess the extent to which the

stakeholders change over time, presumably as a result of the intervention. In outcome

evaluation, it is important to consider the design of the study, including design features

such as including a control group for comparison, random assignment, pre and post-tests,

and adequate sample size. Attrition is a common problem with online interventions, so it

is crucial to anticipate attrition when determining sample size and to maintain frequent

contact with participants to keep them engaged (Chiu & Eysenback, 2010).

Outcome measures assess whether target goals have been achieved. Measures of

STS, CF, and burnout for the SupportNet intervention are discussed in the section on

measurement.

Impact evaluation

Impact evaluation examines both the intended and unintentional changes that can

be attributed to the program or intervention. In addition to assessing the extent to which

the intervention is responsible for the observed changes in the target group, impact

evaluations also examine secondary and tertiary groups who are affected indirectly by the

intervention. For example, secondary stakeholders affected by the SupportNet

intervention would include the clients of the primary caregivers who participate. Also,

the friends, family, and coworkers of the participants warrant consideration as well.

Qualitative Methods

Although the majority of empirical published research in psychological science currently is based on quantitative research methods and statistical analyses, there is a growing appreciation for the contributions of qualitative research methods (citation here). Whereas quantitative research aims to describe a target population of interest, qualitative research focuses on accurately portraying detailed descriptions of selected individuals' experiences. Participants are selected purposefully, and qualitative data can be gathered through interviews and observations, among other methods (Polkinghorne, 2005). Although in-depth individual accounts may not be generalizable to a larger group of people, qualitative research yields in-depth information and produces a clear picture of a particular person's experience. Combining quantitative and qualitative methods can create an informed, well-rounded analysis; detailed accounts from key informants can provide insight that drive broader quantified hypotheses about the population of interest. Furthermore, detailed anecdotal evidence from interviews with participants can further support (or contradict) the results found by traditional quantitative research methods.

In the process evaluation of the SupportNet project, semi-structured interviews and open-ended questions may be utilized. The semi-structured interviews will contain a protocol of open-ended questions to enable comparison across cases, yet interviewers will maintain a degree of flexibility to probe further particular areas that emerge in participants' stories to obtain more in-depth data (Hill, Knox, Thompson, Williams, Hess & Ladany, 2005). Interviews will be conducted face-to-face when possible but phone interviews may also be utilized. Face-to-face interviews have the advantage of providing rich nonverbal information in addition to verbal responses to questions; however, some

interviewees may feel more comfortable or agreeable to talking over the phone (Knox & Burkhard, 2009).

Evaluation of Interventions for Caregivers

There are few empirical studies that evaluate interventions related to burnout, compassion fatigue and secondary traumatic stress for all job types, and none have been found to date that evaluate these types of programs within the military. The intervention programs described previously have limited empirical support and evaluations of these programs seem to be nonexistent.

There is a striking lack of evaluation of military mental health interventions, and virtually no evaluations of interventions aimed at reducing caregiver CF and burnout. One evaluation has focused on meditation and mindfulness practices as a means of support for military care providers (Duerr, 2008). Another intervention aimed to treat military personnel struggling with alcoholism (Pemberton et. al, 2011). The lack of evaluations in military care settings requires urgent attention. Evaluation can accelerate the development and improvement of programs in order to provide service members and their caregivers with the support they deserve, which is empirically-based support that has proven successful outcomes.

Meditation and Mindfulness Practices. Integrating results from 45 selected articles, mindfulness and meditation practices by care providers has empirically shown significant benefits in four main areas: reduction in anxiety and depression, reduction in other burnout symptoms, increases in compassion and self-compassion, and impact on professional skills (Duerr, 2008). The evaluation of the studies that resulted in diminished burnout symptoms and higher levels of compassion for others, self-

compassion, and empathy may be of particular relevance to development of the SupportNet program. While Duerr (2008) provides a strong case for the benefits of mindfulness and meditation practices in general, it is critical to note that the studies included in her research did not focus on psychologists treating military clients.

The evaluation notes five elements that contribute to the prevention and treatment of burnout and compassion fatigue, including compassion and self-compassion, resilience, self-awareness, meta-cognition and attention, and meaning (Duerr, 2008). Self-awareness includes self-care. These elements also coincide with the theory of improving one's coping self-efficacy. In considering how to implement mindfulness and meditation based practices as an intervention to military caregivers, Duerr concludes that a support system is of the utmost importance in helping military providers and functions to optimize the positive effects of any intervention.

Program Evaluation of Internet Interventions

A recent meta-analysis compared internet interventions that promote health behavior change across three characteristics: theoretical basis for intervention, behavior change techniques used, and mode of delivery (Webb, Joseph, & Yardley, 2010). The meta-analysis demonstrated that the more extensive use of theory was associated with significantly larger effect sizes compared to those that made less extensive or no use of theory. Specifically, interventions that used theory or predictors to select recipients for the intervention tended to have the largest effects on behavior compared with most other uses of theory (Webb et al.). Among the health behavior interventions included in the analysis, the most commonly used behavior change techniques included providing information on the consequences of behavior in general, prompting self-monitoring of

behavior and identifying barriers and/or problem-solving. Although used in fewer interventions included in this analysis, stress management or general communication skills training had the largest effect sizes of $d = .50$ and $d = .49$, respectively (Webb et al., 2010). Additional behavior techniques also demonstrated significant effect sizes that exceeded $d = .20$, including modeling, relapse preventing/coping planning, facilitating social comparison, goal setting, action planning, and providing feedback on performance (Webb et al.). Regarding the mode of delivery for the interventions, Webb and colleagues found that internet-based interventions that also utilized text messages had especially large effects on behavior ($d = .81$); also, interventions that also used the telephone as an additional mode of delivery had small-to-medium effects ($d = .35$; Webb et al.).

Although internet interventions continue to increase , the guidelines for research and evaluating effectiveness of such interventions have lagged behind (Proudfoot et al., 2011). This rapidly expanding sphere of influence necessitates guidelines for evidence-based research and evaluation methods in order to advance as a science. To address this need, Proudfoot and colleagues developed a set of guidelines for the process and reporting of internet interventions research; these guidelines were formulated by iterative discussion resulting in consensus by the professional authors of the article with the intention of to serve as a basis for regulations to follow. Guidelines specific to program evaluation within this domain involve the areas of efficacy, efficiency, and effectiveness. Additional facets relevant to the evaluation of the SupportNet intervention will also be discussed including target population, model of change, type and dose of intervention, program interactivity, multimedia channel of delivery, and degree of synchronicity.

Efficacy. In terms of efficacy of the intervention, it is necessary to include the psychometric properties of the measures utilized, outline the data collection procedures and the schedule of measurements implemented, describe the type of data analyses conducted, and report the study's findings and conclusions drawn. Regarding the participants in the sample, the characteristics of the sample need to be provided, comparison groups defined, and details of sample attrition at each measurement time and details of participants' adherence or non-adherence should be provided when relevant (Proudfoot et al., 2011). Process measures, such as usage, traffic, and attrition provide key information for analyzing user behavior, delivery mechanisms, systematic attrition, and outcomes (Christensen, Griffiths, & Farrer, 2009).

Effectiveness. In assessing effectiveness, researchers should report routine outcome measurements, participants' adherence to the intervention, and information about the generalizability of intervention's effectiveness in a real world context (Proudfoot et al., 2011). Indices of an intervention's effectiveness include improvements in users' symptoms, behavior, functioning and quality of life (Proudfoot). The SupportNet project will measure burnout, STS, CF, CS, perceived social support, and quality of life using some of the measures discussed later in this review. In addition to these quantitative measures of effectiveness, qualitative methods may be necessary to enrich the information provided by the quantitative analyses. Proudfoot et al. urge researchers to recognize additional complexities including participant preferences, selection biases, differential dropout rates, and the appropriate use of quantitative and qualitative methods.

Efficiency. One reason internet interventions have grown so rapidly is their relatively low cost to develop and disseminate. In considering the cost-to-benefit ratio, internet interventions have the potential to benefit a large sample of individuals at a relatively low cost. Having professional support who respond to participant inquiries or provide live chat support would add to the cost of an intervention, but it increases the synchronicity and interactivity components discussed below.

Target population. The target population should be defined in terms of demographic factors, symptoms or problem area, psychological indices (e.g. self-efficacy, motivation, and locus of control), and technological considerations (e.g. computer ability) (Proudfoot et al., 2011). For the SupportNet project, key demographic factors would include age, gender, education level, years experience in the field, trauma training, and personal experience with trauma. The symptoms or problem area include burnout, STS and CF as defined previously.

Another related facet is the audience reach, which refers to the accessibility of the intervention; the way by which participants access the intervention must be clearly defined as well as eligibility and exclusion criteria (Proudfoot et al., 2011). An additional consideration for internet interventions is readiness for mass dissemination, including information about the capacity for the program to be released on a larger scale and reach a wider audience (Proudfoot et al., 2011).

Model of change. The specific process variables for therapeutic change will depend on the theoretical basis for a given intervention. The SupportNet intervention intends to utilize social cognitive theory as a framework for providing benefits to primary caregivers within the military. As outlined in its proposal, the SupportNet project aims to

promote therapist empowerment and resilience by improving environmental support, self-efficacy in coping, and specific coping skills (SupportNet proposal).

Type and dose of intervention. Proudfoot et al. (2011) recommend that the type and frequency of the intervention be clearly stated (the prescribed and actual frequency of use of the site and the modules within it), whether users can track their progress and receive feedback, and whether the intervention is adjusted to meet individual needs. In addition, it should be made clear whether the measures used in the intervention have been validated for online administration.

Program interactivity. Interactivity in an online intervention includes providing feedback and tailoring content to individual users, active participation as opposed to passive user behavior, increased user control and involvement in decision making, and real-time responsiveness (synchronicity); theoretically, higher levels of interactivity should improve learning, motivation and adherence which enhances the impact of the intervention (Walther, Pingree, Hawkins, & Buller, 2005). Some examples of interactive elements include interactive exercises, self-monitoring data, tailored feedback, discussion groups or chat rooms, questions and answers, action planning, and questionnaires or quizzes (Proudfoot et al., 2011).

Delivery modality. Various multimedia channels may be utilized in delivery of internet interventions to enhance user engagement, and the channels of delivery chosen should correspond to the target users' characteristics, computer literacy, motivation and learning style, as well as treatment readiness (Proudfoot et al., 2011). Several channels of delivery include audio, video, email correspondence and support, live chat, texts, mobile

phone applications, 3-D virtual reality environments, and chat rooms or discussion groups.

Synchronicity. The degree of synchronicity refers to the timing and responsiveness in communication, feedback and support from professional clinicians, other users, or from the program itself (Proudfoot et al., 2011). Synchronous communication is immediate, such as real-time chat via Skype or some similar programs. Asynchronous communication is delayed, such as email responses and blogs or forums. In planning an internet intervention, it is important to clearly report the synchronicity of support and feedback to the users and analysis.

Adherence. Dropout is of particular concern for web-based intervention research, for attrition can undermine the statistical power of the the results and the generalizability of the study. Adherence measures the extent to which participants follow the intervention as intended. Ways to increase adherence and reduce attrition include sending reminders to participants and improving upon the interactivity of the program (discussed previously). In a study of a self-guided CBT e-therapy for depression, Christensen, Griffiths, Korten, Brittcliffe, & Groves (2004) found that weekly tracking and reminders reduced attrition. Quantitative measures of adherence include number of logins, completed modules or activities, visits and posts to forums, and self-reported completion of activities in daily life away from the program (Donkin, et al., 2011). In their review of e-therapies, Donkin et al., concluded that module completion was most consistently related to outcomes in psychological health interventions, and number of logins was most related to outcomes in physical health interventions. Tracking participant usage of the

site is a crucial component in the development and ongoing process evaluation of web-based interventions.

   Process Evaluations of Internet Interventions. In a recent process evaluation of a web-based intervention designed to empower disability benefit claimants, the reach and compliance were measured in the following ways. Reach was determined by registering the number of invitations sent and the number and characteristics of non-participants and reasons for not participating (if provided). Additionally, nationwide representative data were collected as indicators of population to determine the representativeness of the sample. Compliance was defined as the extent to which the intervention was used, and user authentication was used to register activity for each participant (Samoocha, et al., 2011). Weblogs included the participant's ID number, page visitied, time stamp for start and end times, and the session number (Samoocha, et al., 2011). The weblog data were used to calculate each participant's total time the intervention was used, number of unique page views, total number of sessions, number of clicks, time spent on each module, and the most used components of the intervention (using number of unique visitors and total time on page), and the amount of posts and post views (Samoocha, et al., 2011). Additionally, an online questionnaire was sent to participant's six weeks after the disability assessment and asked about usage barriers, perceived effectiveness, program appreciation, and suggestions for improvement (Samoocha et al., 2011).

   In the development and pilot evaluation of MOMNET, a cognitive-behavioral intervention for maternal depression, researchers utilized by both objective computer-generated indicants and self-reports by participants and coaches to measure engagement, satisfaction, and ease of use (Sheeber et al., 2012). An online infrastructure provided

coaches and supervisors with tools for monitoring client participation and clinical progress (program utilization, homework completion, mood/activity ratings, content mastery, and biweekly depression ratings) and tailoring the content of coach calls based on the information provided (Sheeber et al., 2012) Immediate feedback was provided by the computer program and by the coaches; another structural feature was use of varied multimedia materials and interactive elements to maintain participant interest. Knowledge acquisition was examined at the completion of each session with the goal being to obtain mastery (> 80% correct responses) before user proceeded to the next module. The program identified incorrect responses, reviewed related content and retested the material as needed.

Program Evaluation within the Military

There is a paucity of empirical research related to military mental health interventions, and none of the military interventions previously discussed have been formally evaluated. In order to effectively prevent and treat mental health problems within the military, empirical research and evaluation is currently needed. Two internet interventions aimed at reducing alcohol problems within the military are discussed as well as a CBT self-help site to enhance self-care and adaptive coping. More recently, an internet intervention aimed at promoting resilience among soldiers has been implemented and evaluated.

Comprehensive Soldier Fitness Program. In effort to promote resilience and psychological health among soldiers, the U.S. Army initiated the Comprehensive Soldier Fitness Program (CSF; Cornum, Matthews & Seligman, 2011). In the context of psychological health, resilience refers to the ability to effectively cope during and after

stressful or potentially traumatizing events. The theory behind the program is that developing resilience is a process that can be learned (Lester, Harms, Herian Krasikova, & Beal, 2011). Through skills training, the CSF program seeks to enhance resilience in five health areas: physical, emotional, social, family, and spiritual (Lester, et al. 2011). The program aims to increase physical performance and psychological strength as well as "reduce the incidence of maladaptive responses" (Cornum, Matthews & Seligman, 2011, p.4). The program's primary mechanism of change is through teaching meta-cognitive skills (Lester et al., 2011). This proactive approach to strengthening soldiers' resilience fits the military culture better than seeking out traditional mental health treatment, which is still often viewed as a sign of weakness. In fact, the program distinguishes itself from the Army Medical Department intentionally to avoid the stigma associated with behavioral health care (Lester et al., 2011).

Resilience training is now mandatory component of every Army leader development school. This CSF program includes an online assessment of soldier's Resilience/Psychological Health (R/PH), individualized learning modules, formal resilience training, and the training of Army master resilience trainers (MRTs). The Master Resilience Training program is an integral component of the CSF program. Within each unit, a Master Resilience Trainer (MRT) receives formal training and then teaches these skills to their peers and subordinates. Training teaches the MRTs self-awareness, self-regulation, optimism, mental agility, strengths of character, and connection (Lester et al., 2011). The training is "designed to develop Soldiers' ability to understand the thoughts, emotions, and behaviors of themselves and others, help soldiers identify their strengths and the strengths in others by responding constructively to

positive experiences, praising others, and by discussing problems effectively" (Lester et al., 2011, p. 9).

Lester and colleagues (2011) evaluated the effectiveness of the MRT program by comparing soldiers who participated in the program who those who were not exposed to training on their levels of R/PH. Using the CSF program's online self-report measure of R/PH, the GAT, as an outcome measure, the evaluators measured the participating soldiers' R/PH scores before and after participation (15 months from Time 1). Using a control group, the evaluators concluded that the MRT program improved soldiers' R/PH scores in a systematic way; there were no significant differences on Family or Spiritual Fitness, but soldiers exposed to the MRT program had significantly higher scores on Emotional and Social Fitness (Lester et al., 2011). Additionally, the researchers found that those in the treatment condition improved on Emotional Fitness, good coping, and friendship while the control condition did not demonstrate significant change over time. The presence of MRTs embedded within units resulted in increases in Soldiers' R/PH scores (Lester et al., 2011).

Web-Based Military Alcohol Abuse Intervention. Two web-based interventions aimed at curbing alcohol abuse and dependency (i.e. Alcohol Savvy and Drinkers Check-Up) were evaluated by Pemberton, et al. (2011) and found to be effective in attaining their program outcome goals of reducing alcohol intake. Both of these programs were originally designed to help civilians struggling with alcohol problems, but they were later adopted by the military. The Program for Alcohol Training, Research, and Online Learning (PATROL) was created in order to evaluate web-based interventions in the military (Pemberton, et al., p. 481).

To evaluate these programs the PATROL team recruited participants from almost all branches of the military (e.g. Army, Navy, Air Force, Marine Corps) through recruitment tables, fliers, posters and in some cases, television advertisements and ended up with 4,281 total service members registering for the study, 3,889 of which completed the baseline measure, 1,369 of those service members came to the one month follow up, down to only 913 at the six month follow up (Pemberton et al., p. 481). The evaluators attribute this high attrition rate to frequent deployments possible view of lack of incentive to participate in follow ups.

Even give their large sample and attempt to include all military branches, their response rate for the Army (5%) and Marines (16%) was much smaller than that of the Air Force (36%) and Navy (44%) (Pemberton et al., p. 481). This is problematic in terms of much of the active duty personnel being excluded which may result in inaccurate results. Alcohol Savvy is an alcohol "misuse prevention program" that is narrated and contains audio, video and interactive components and is meant to educate and assess alcohol misuse (Pemberton et al., p. 482). Drinkers Check-Up is a motivational intervention operating on a person centered philosophy that is meant to educate the user about their negative drinking habits and empower them to make changes. Random assignment of participants to groups (Drinkers Check-Up, Alcohol Savvy, and delayed treatment group) was done when possible; this was not possible at all installations. The outcomes of the treatments were measured at baseline, one month, and six months by using multiple measures.

To analyze the efficacy of the two interventions, the evaluators employed a "piecewise longitudinal growth model" in order to analyze two separate representations

of change (Pemberton et al., p. 483). One being the change between the baseline and one

month follow up, the other examined the change between the one month and six month

follow up. A significant decrease (p = .053) was seen in the problem drinking behavior

of those who participated in the Drinkers Check-Up compared to the control group, and

the Alcohol Savvy (p = .057) intervention results neared but did not reach significance.

While this evaluation is one of the first to evaluate a web based intervention designed for

military populations it comes with several previously discussed limitations that may have

biased the results. More research is needed to assess the efficacy and long-term impact of

such programs.

     Stress Gym. In an attempt to assist Naval recruits deal with stress and ward off

mental issues attributed to maladaptive coping, a cognitive-behavioral therapy (CBT)

self-help intervention called Stress Gym was tested, implemented and reviewed

(Williams et. al., 2010). The intervention Stress Gym was developed after an earlier

CBT group therapy intervention (Williams et al., 2010). The authors of the article

wished to evaluate Stress Gym only to determine whether or not, it and/or internet

interventions in general, would be accepted and deployable among military populations.

     The items assessed about the intervention included the participants ideas about ,

"user interface, site usability, feasibility of using such a site, and their general satisfaction

with the site" (Williams et al., pg.489). They were also allowed to include what they

liked about the site at the end of these general ratings. The outcome of the evaluation

determined that the web-based intervention was seen as useful and was feasibly in

executing. While this is just a qualitative evaluation, there is still much that can be gained

from the results. As with many other recent studies, these web-based treatments seem to

have promising results (Sloan et al., 2011;Williams et al., 2010; Amstadter, Bromsn-Fulks, Zinzow, Ruggiero & Cercone, 2008; Van Vorhees et. al., 2007), however, there are still few evaluations of such programs, especially among military populations.

<div align="center">**Program Evaluation for the SupportNet Project**</div>

When applying these ideas to the SupportNet project evaluation, it is crucial that the identifiable stakeholders include the project team, clinicians, other employees that work with the clinicians, military chain of command, soldiers employing the clinicians services, and their families. After conducting a thorough needs assessment that is all inclusive of the population that will be utilizing SupportNet (e.g. Military Clinical psychologist, Counselors, Caregiver), a focus group should be conducted to identify all concerns and hopeful outcomes of previously stated stakeholders. This is the best way to ensure that all issues will be addressed in the projected outcome.

Stakeholders

Needs Assessment

Recent military operations in Iraq and Afghanistan have created a growing population of returning soldiers with mental health needs. Post-traumatic stress disorder (PTSD), depression, and substance abuse are among the common problems faced by returning soldiers. In an analysis of over 100,000 Operation Iraqi Freedom and Operation Enduring Freedom (OIF/OEF) veterans recently enrolled in Veteran's Association (VA) healthcare, approximately 25% received at least one mental disorder diagnosis; of these 25,000 veterans, 52% were diagnosed with PTSD, making it the most common health diagnosis in this population (Seal, Bertenthal, Miner, Sen & Marmar, 2007).

Process Evaluation

Outcome Measures

The following measures have been proposed for use in the initial needs assessment, process evaluation, and outcome evaluation for the SupportNet project. In the initial needs assessment, these measures will be used to determine baseline rates of the presence of burnout, STS, and CF in military caregivers. Then, the same measures will be used to determine if the intervention leads to decreases in burnout, STS, and CF as hypothesized.

Oldenburg Burnout Inventory (OLBI). Besides the MBI the Oldenburg Burnout Inventory (OLBI) also tests for burnout. Some claim this to be a better measure of burnout due to the shortcomings of the MBI. The OLBI is similar to the MBI but the two differ in several ways, first, the OLBI only consists of two scales as opposed to the MBI's three, the two scales of the OLBI are exhaustion and disengagement. The questions are said to be balanced by positive and negatively worded questions. Exhaustion is represented on the OLBI in both the physical and mental meanings. Some questions remain however on whether or not the OLBI in its translations is still as strong of a measure (Halbesleben & Demerouti, 2005).

Maslach Burnout Inventory (MBI). The tool most often used to assess burnout is the Maslach Burnout Inventory (MBI). The MBI consists of three different factors that are meant to measure burnout; emotional exhaustion, depersonalization and personal accomplishment. In an evaluation of the MBI using hospital staff ($n = 445$), researchers found that the MBI did test mostly for emotional exhaustion, followed by depersonalization and weakly identified personal satisfaction (Kalliath, O'Driscoll,

Gillespie, & Bluedorn, 2000). The MBI has been criticized by some for being poorly worded and relying on underdeveloped concepts.

Professional Quality of Life Scale (ProQOL). The ProQOL measures two subscales of compassion fatigue: burnout and secondary traumatic stress. In addition, the ProQOL measures a third subscale, compassion satisfaction (CS), which refers to the positive effects that caregivers experience from trauma work (Stamm, 2010). Feeling rewarded and fulfilled by one's profession and feeling good about helping others contribute to CS measure (Stamm).

Based on their research surveying 1,121 mental health providers, Sprang, Clark and Whitt-Woosely (2007) found that participants who had previously received specialized trauma training scored significantly lower on compassion fatigue and higher on compassion satisfaction as measured by the ProQOL. The results suggest that knowledge and training may help to shield against some of the negative effects of trauma therapy (Sprang et al., 2007). Taken one step further, Sprang et al., theorize that specialized training enhances clinician self-efficacy by improving their skills in assessment and treatment of trauma patients and therefore leading to improved outcomes. Consequently, specialized trauma training is recommended to reduce levels of CF and burnout and to enhance CS (Sprang, et al.).

The ProQOL given at multiple points in time will function to measure the extent to which the SupportNet program succeeds in its goals of reducing STS and burnout as well as enhancing CS.

Secondary Traumatic Stress Scale (STSS). The STSS is a self-report measure consisting of 17 statements related to STS symptoms, and responses indicate the

frequency experiencing each symptom on a Likert-type scale ranging from 1 (never) to 5 (very often) (Bride et al., 2004). The STSS is designed to measure current, rather than cumulative, exposure to traumatized clients, since the responses indicate frequency of experiencing each symptom within the past seven days. There are three subscales to categorize the three types of symptoms, intrusion, avoidance and arousal. The STSS is a useful tool in evaluating strategies designed to reduce STS (Bride et al., 2004).

Compassion Fatigue-Short Scale. The Compassion Fatigue- Short Scale (CF-Short Scale; Adams, et al., 2006) shortens and improves upon the Compassion Fatigue Scale (Figley, 1995). Compared to its predecessors, the CF- Short Scale has fewer questions (only 13 compared to 30) and has improved validity and reliability (Adams, et al.). To clarify the definitions of STS, burnout, and CF, the CF- Short Scale includes subscales for burnout and STS, and it produces an overall CF score that is highly correlated with the original CF Scale measure (Adams, et al.).

Work Stress and Burnout Self Efficacy Scale. In accordance with Bandura's (2006) assertion that self-efficacy beliefs are context specific, the proposed study will use the Work Stress and Burnout Self Efficacy scale (WSBSE; Jing, 2008). In its pilot study, the 28-item WSBSE demonstrated high reliability (Cronbach's α = .96) when tested on a large, heterogenous sample of professionals. The WSBSE contains three subscales including work demands management self-efficacy, work resources management self-efficacy, and work stress and burnout symptoms management self-efficacy; the subscales also demonstrates high reliability with Cronbach's alphas .91, .85, and .93, respectively (Jing, 2008). Additionally, the scale demonstrated convergent validity with previously validated scales of generalized self-efficacy and optimism (Jing, 2008). Responses to all

items are given a rating on a 7-point scale from (1) not capable to (7) very capable. The mean of the scores within each subscale are calculated as the score for that subscale, and the total WSBSE score in this analysis represents the sum of the three subscale scores.

Recommendations & Conclusions

There has yet to be sufficient empirical research evaluating interventions for treating STS, CF and burnout in military caregivers. Evaluation of current programs is of particular importance as psychologists and other helping professionals are faced with an overwhelming number of military patients suffering from PTSD and related mental disturbances. Appropriate planning and reassessment of current efforts is needed in order for progress to be made in a timely and efficient manner.

Following from Figley's model of CF, treatment should include educational information about CF, desensitization to traumatic stressors in order to strengthen one's ability to cope with them, and a combination of exposure and relaxation exercises (Figley, 2002). Additionally, social support enhances a therapist's ability to cope and is considered another vital component to treatment (Figley, 2002). Thus, in treating CF it is important to assess and enhance the therapists social support system (Figley). The SupportNet intervention should provide online tools for mental health providers to learn about CF and ways to prevent it. Empowering clinicians with information and promoting specialized training will likely help to prevent or reduce burnout and CF.

Consistent with Figley's (2002) assertion that social support is a vital component for treating CF, the SupportNet intervention provides additional social support within the mental health community. The SupportNet project plans to integrate skills training, helpful tools, and social support through an interactive social networking platform.

Empowering caregivers with skills related to their profession, skills to improve their self-care, and social support has the potential to provide significant benefits to primary caregivers at risk for CF and burnout.

Based on research to date on evaluating internet interventions, some important components to consider in the development of the SupportNet project include target population, program interactivity, sychronicity, and adherence. Related to target population and adherence, involving stakeholders in the development of the project may facilitate reaching the intended target groups as well as increase the likelihood of continued participation in the project (reduce dropout rate) due higher stakeholder investment in the process. Additionally, the inclusion of stakeholders in the development of the project would allow the intervention to be tailored to meet their identified needs. In developing the component of the SupportNet site, it will be important to define the "doses" of the intervention and the modality through which they are delivered, and to specify goals related to the degree of interactivity and synchronicity intended. To measure participant behavior and interactivity with the website, it would be beneficial to track participants' activity and usage, including user logins, time spent, and navigation (clicks) within each module or component of the site. Also, a built-in feedback system for participants to rate and provide comments on the perceived usefulness of component would provide useful data for ongoing process evaluation.

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Process and Outcome Evaluation Plan for SupportNet

Robert Durham, Ph.D.

Marisa Teel, B.S.

Arjun Bhalla, B.A.

Process and Outcome Evaluation Plan for SupportNet

The SupportNet intervention to assist mental healthcare providers in reducing

potential job burnout and secondary traumatic stress (STS) through improved social

support and self-efficacy is nearing its implementation phase. As required by the granting

agency, an independent external program evaluation is required. To this end, what follows

is a proposed plan for both process and outcome evaluations of that implementation and its

subsequent results. The process evaluation of the SupportNet project will be primarily for

summative purposes, but it may also serve formative purposes in future replication of the

intervention.

Process evaluations are typically used to determine the extent to which the

intervention is being delivered and implemented according to the stipulations enumerated

in the program proposal. During the development and implementation stages of the

program, process evaluators use systematic measurement to assess how well the program is

meeting its specified goals, the extent to which the program is reaching the intended target

group, and how satisfied participants are with the program. In addition, process evaluation

results may be used to make changes in the delivery or content of the implementation to

improve the intervention(s). The following plan first briefly reviews the SupportNet

project, its ideal implementation, and then outlines the specific questions to be answered

and methods to be employed in that evaluation. Change scores on the described

measurement methods will constitute the outcome evaluation component.

SupportNet Project

The SupportNet project attempts to provide an integrated approach to helping

prevent and treat job burnout and STS among military mental health care providers. From a

social-cognitive theory perspective (Bandura, 1997), the proposed website and integrated treatment will enhance the perceived social environmental support, enhance coping self-efficacy to handle work-related stress, and facilitate the setting and mastering of goals (both professional and personal).

Effectiveness of the intervention will be demonstrated by reducing participants' scores on measures of job burnout, perceived stress and STS and increasing positive outcomes, including work engagement and coping self-efficacy. Through the use of randomized clinical trials (RCTs), the project developers intend to demonstrate the effectiveness of the intervention on these key outcome variables after utilizing the website for a specified time period (eight weeks).

The primary stakeholder groups include the SupportNet researchers and staff as well as the participants in the RCTs. The secondary stakeholders include the U.S. Army Behavioral Health Department associated with Evans Army Community Hospital, Fort Carson, the Department of Defense, military clients, spouses and colleagues of primary stakeholders. In addition to the providers participating in the intervention, secondary stakeholders in the program may need to be assessed as well. For example, supervisors, significant others, and coworkers might have secondary interest in the SupportNet program. Once more clearly identified, these other stakeholder groups may be given a modified version of the comprehensive questionnaire at pre-, mid and post-intervention time points. This questionnaire may be administered online (or delivered by mail) and it will consist of similar content domains as the questionnaire discussed above but will likely be a shorter version. This questionnaire for other stakeholders will aim to ascertain participants' opinions, knowledge of, and attitudes toward the program and its efficacy.

Complete and Acceptable Program Delivery

The ideally implemented SupportNet program would utilize all components of the intervention, including the online components (e.g., social networking platform, self-assessment, etc.) and getting personalized coaching from a designated SupportNet behavioral health clinician. The website will deliver the majority of the components via modules available from the home page. The modules include: Self-Assessment, Goal Setting, Journaling and Library/Resource Room (psychoeducation). Through the Social networking platform, providers will have the ability to locate social support from designated mentors and coaches. Mentors refer to other system users (providers) who have identified themselves as having a specialized expertise in a given area and are willing to provide mentorship to other system users. Coaches refer to a SupportNet behavioral health clinician who provides coaching services to system users. The social networking platform, website modules, and coaching are discussed in more detail below.

Social Networking platform. A major overarching component of the SupportNet website is the social support it provides. Social support from personal and professional mentors will be accomplished via the social networking platform. Individuals will have the opportunity to seek out mentors related to areas of interest and professional problems they are facing. All participants are asked to indicate areas of expertise, so they may function as mentors to other providers. The social networking platform will provide an engaging, rich, helpful experience for its users and increase providers' perceived social support.

Goal Setting and Life Balance. Goal setting is another important component of the intervention that should function to increase participants' self-efficacy through mastery experiences. Based on the self-assessment and consultation with a designated coach,

providers can create their own professional and/or personal goals, share them with their

social network (if desired), track progress, and specify rewards for goal completion.

A life balance wheel allows providers to identify and assess values and key areas of

their lives and will function to guide goal setting in various life domains. The domains of

the life balance wheel include Home/Physical Environment, Health & Fitness, Learning &

Growth, Career/Work, Money/Finance, Family/Friend/Partner/Love Relationships, Fun,

and Spirituality. For each domain, providers can rate their current level of satisfaction and

their desired level of satisfaction. They may set goals to improve in areas in which they

desire more satisfaction.

Self-Assessment. The assessment module should allow providers to complete self-

report questionnaires that provide a reliable and valid measure of their behavior or

functioning in the following areas: social support, burnout, coping self-efficacy, secondary

traumatic stress, perceived stress, and work engagement. The providers will be able to get

immediate feedback as to their scores and track their scores over time should they take the

measures repeatedly. Feedback will be provided based on their scores, and may direct

providers to other modules of the website that may be appropriate for their specific needs.

Journaling. The use of journaling may assist in increasing self-awareness and

allowing an outlet to process through difficult client material and one's own reactions to it.

The journaling will be in the form of free form text, and it will not be automatically shared

with other users.

Library/Resource Room. Psychoeducation should supplement the interactive

activities by contributing to participants' knowledge of a variety of relevant topics,

including STS, secondary traumatic growth, job burnout, work engagement, social support,

self-efficacy, self-care, well-being, and work/life balance. The SupportNet resource room

content will provide a resource for providers to learn more information about relevant

topics to increase their awareness of issues such as burnout and STS as well help facilitate

accomplishing their goals. The resource room will also provide information about

evidence-based treatments to improve clinical skills. The content will be provided by the

SupportNet team and would ideally be updated to stay current with research and

publications. Suggestions for specific reading material may be given to the provider based

on feedback from the assessment module or recommendations from the coach.

Coaching. Each provider will be assigned a coach to assist in the setting and

achieving of personal goals. Ideally, each provider would utilize and benefit from the six

sessions with their designated SupportNet behavioral health clinician. Potential modalities

of communication between providers and coaches include, but are not limited to, face-to-

face meeting, online meetings through SKYPE or a similar technology, or speaking on the

telephone. Additionally, referrals for personal therapy in some instances may be offered to

providers as needed. Personal therapy would be provided by a referred party, not a

SupportNet staff member.

Process Evaluation Questions and Methods

Steckler and Linnan (2002) specified seven components to be measured and

evaluated in process evaluations of public health interventions, including context, reach,

recruitment, dose delivered, dose received, fidelity to treatment, and implementation. Based

on the recommendations of Saunders, Evans, and Joshi (2005), a process evaluation plan

should include the following components: implementation fidelity, dose delivered, dose

received, recruitment, reach, and context. Each of these components is detailed below.

Fidelity. The implementation of the intervention reflects the extent to which the intervention has been applied and received by the target population. The fidelity refers to what constitutes high quality implementation (Saunders et al. 2005). Fidelity means the extent to which the intervention was delivered as intended, and represents a measure of quality and integrity of the intervention as planned by its developers (Steckler & Linnan, 2002). The SupportNet intervention intends to utilize social cognitive theory as a framework for providing benefits to primary caregivers within the military. As outlined in its proposal, SupportNet should reduce burnout and secondary traumatic stress and promote secondary traumatic growth and work engagement by improving environmental support, coping self-efficacy, and self-care behaviors and skills. From a social-cognitive perspective, the fidelity of the SupportNet project may be defined as the extent to which the intervention improves mental health care providers' perceived efficacy to cope with the demands of their jobs and utilize personal and professional resources effectively. To measure this, participants will be asked to what extent the intervention succeeds in improving work engagement, coping self-efficacy, and self-care behaviors. Additionally, SupportNet staff will be asked via self-report questionnaire delivered via email regarding their perceptions of how the SupportNet project is reaching its intended goals.

Adherence measures the extent to which participants follow the intervention as intended. Adherence is of particular concern for web-based intervention research, for attrition can undermine the statistical power of the results and the generalizability of the study. Quantitative measures of adherence include number of logins, completed modules or activities, visits and posts to forums, and self-reported completion of activities in daily life away from the program (Donkin, et al., 2011). In their review of e-therapies, Donkin et

al., concluded that module completion was most consistently related to outcomes in

psychological health interventions, and number of logins was most related to outcomes in

physical health interventions. Tracking participant usage of the site is a crucial component

in the development and ongoing process evaluation of this web-based intervention.

Implementation fidelity will be measured by the following process evaluation questions:

1. ***To what extent was the intervention implemented as planned?***

    Measured by: SupportNet staff report and process evaluation; participant

self-report questionnaire

2. ***To what extent was the intervention implemented consistently with the***

    underlying theory?

    Measured by: SupportNet staff report and process evaluation

Dose delivered. The dose delivered refers to the amount of intended units of the

intervention provided to participants. Measuring dose delivered of an intervention can be

accomplished by answering the following question:

3. ***To what extent were all of the intended components of the SupportNet***

    intervention implemented?

    Measured by: Usage tracking data; participant self-report questionnaire

Tracking each participant's number of logins, total amount of time spent on the site,

module completion, and time spent engaged with each component may all function as

quantitative indicators of meeting this objective. Various multimedia channels may be

utilized in delivery of the internet component of the intervention to enhance user

engagement. SupportNet has proposed several delivery modalities to be used, including

but not limited to: audio, video, email correspondence and support, and discussion threads.

In addition, face-to-face intervention may be available to the participants who choose to utilize that component of the intervention. Dose delivered means the amount of intended units of the intervention provided to participants, whereas the dose received refers to the amount of units of the intervention participants were actually exposed to.

Dose received. Related to participant engagement in the program, dose received reflects the extent to which participants use modules, resources, or techniques recommended by the program (Murta, Sanderson & Oldenburg, 2007). The dose received represents the extent to which participants actively engage in the intervention and interact with the delivered intervention components. Dose received can be conceptualized as containing elements of both exposure and satisfaction (Saunders et al., 2005).

Interactivity in an online intervention includes providing feedback and tailoring content to individual users, active participation as opposed to passive user behavior, increased user control and involvement in decision making, and real-time responsiveness (synchronicity). The degree of synchronicity refers to the timing and responsiveness in communication, feedback and support from professional clinicians, other users, or from the program itself (Proudfoot et al., 2011). Synchronous communication is immediate, such as real-time chat via Skype or some similar programs. Asynchronous communication is delayed, such as email responses and blogs or forums. In planning the SupportNet intervention, its email and blogs represent asynchronous communication. Feedback on self-assessments would likely be synchronous. Consistent with researchers' recommendation for interactivity (Proudfoot et al., 2011), SupportNet plans to offer interactive elements including self-assessment, goal setting, life balance wheel, tailored feedback and the resource room.

4. To what extent were participants satisfied with the intervention received?

Measured by: Participant self-report questionnaire and qualitative report

5. To what extent did participants use the various components of the SupportNet

intervention?

Measured by: Participant self-report questionnaire and usage tracking data

6. Did the participants find the intervention components useful?

Measured by: Participant self-report questionnaire and qualitative report

Reach and Recruitment. Reach refers to the proportion of the target population that participates in the intervention. The target population should be defined in terms of demographic factors, symptoms or problem area, psychological indices (e.g. self-efficacy, motivation, and locus of control), and technological considerations (e.g. computer ability) (Proudfoot et al., 2011). Reach can be determined by registering the number of invitations sent and the characteristics of the participants. Reach also refers to the accessibility of the intervention; the way by which participants access the intervention must be clearly defined as well as eligibility and exclusion criteria (Proudfoot et al., 2011). An additional consideration for internet interventions is readiness for mass dissemination, including information about the capacity for the program to be released on a larger scale and reach a wider audience (Proudfoot et al., 2011). A primary objective in the outcome evaluation will be to provide recommendations for potential replication to other military posts. Relatedly, recruitment refers to procedures used to attract participants, and it can occur at the individual and organizational level.

7. *Was the intervention delivered to the minimum number of participants?*

Measured by: Demographic information; usage tracking data

8. *What procedures were followed to recruit participants?*

Measured by: SupportNet staff report and process evaluation

Context. Context refers to aspects of the larger social, political, and economic environment that may influence implementation of the intervention (Steckler & Linnan, 2002). Regarding the SupportNet project, the larger context of the military culture in general and Fort Carson specifically, must be considered. Possible data sources include SupportNet staff, participants, and key informants from Fort Carson and Evans Army Community Hospital.

Method

Participants/Stakeholders

The primary stakeholders include the SupportNet researchers and staff as well as the participants in the RCT. The secondary stakeholders include Evans Army Community Hospital, Fort Carson, the Department of Defense, military clients, spouses and colleagues of primary stakeholders. In addition to the providers participating in the intervention, secondary stakeholders in the program may need to be assessed as well. For example, supervisors, significant others, and coworkers would have secondary interest in the SupportNet program. Once more clearly identified, these other stakeholder groups may be given a modified version of the comprehensive questionnaire at pre-, mid and post-intervention time points. This questionnaire may be given online, or could be mailed, and it will consist of similar content domain as the questionnaire discussed above but will likely be a shorter and modified version. This questionnaire for other stakeholders will aim to ascertain participants' opinions, knowledge of and attitudes toward the program and its efficacy.

Measures

      SupportNet Staff Report. The project developers, researchers, and other staff members who contribute to the development and implementation of the SupportNet project will be asked questions that relate to answering the process evaluation questions outlined above. This brief questionnaire contains both quantitative and qualitative measures of each individual's role in the project, perceived barriers to ideal project implementation, and confidence in the project reaching its goals. The quantitative portion consists of seven items that will be measured with a 6-point Likert-type scale (1 = *Strongly Disagree* to 6 = *Strongly Agree*). Additionally, a more in-depth open-ended questionnaire will function to obtain more detailed, qualitative data related to the SupportNet project development, implementation, and its progress in reaching its goals. Staff members will be asked about perceived obstacles to ideal implementation of the project so that potential barriers may be addressed. This self-report from the staff will specifically be useful in informing questions 1, 2, and 8 specified above in the process evaluation questions and methods section.

      Participant Report/Online Questionnaire. A comprehensive questionnaire will be given to all participants after the intervention. Part of this comprehensive questionnaire has already been developed by the SupportNet team, and it measures responses to specific aspects of the intervention. These items measure knowledge and skills gained and perceived behavioral changes. Additionally, we propose adding to this questionnaire items that assess for overall program satisfaction (see Appendix A). Participants' attitudes toward the quality and content of the intervention as a whole will be assessed in this longer, more in-depth questionnaire. Questions will be answered by a 6-point scale ranging from (1 = *Strongly Disagree* to 6 = *Strongly Agree*). Lastly, the online questionnaire will also provide

the opportunity for participants to provide additional feedback in their own words.

Participants will be asked to provide suggestions and comments on the program as a whole

as well as for specific components of the intervention.

Participant Feedback on Website. Participants will have the opportunity to

choose to give feedback when interacting with the website. Participants can choose to give

feedback specific to different components of the website (e.g. resource room, goal setting,

etc.), or they may provide general feedback for the website as a whole. There will be space

given for qualitative prose if the participant wishes to add comments or suggestions related

to the program. The feedback section will be accessible for participants to choose to opt-in

to fill out, but will not be a required part of the intervention.

Usage Tracking Data. The prescribed and actual frequency of use of the site and

the modules within it should be tracked (Proudfoot et al., 2011). Key indicators for the

process evaluation include: (1) Number of logins, (2) Total amount of time spent on

website, (3) Number of components (modules) accessed, (4) Time spent on each

component, (5) Traffic, and (6) Attrition. Regarding attrition, it would be helpful to know

the demographic information of those participants who drop out so that systematic attrition

can be ruled out or verified.

Demographic Information. Obtaining demographic information from all

participants will be of utmost importance for assessing the extent to which the sample of

participants represents the target population of interest and in determining the

generalizability of the findings. Furthermore, demographic information will inform the

researchers of the readiness of the site for replication to other military posts. The

demographic information will be obtained from all participants as part of the intervention,

in which case there will not be a need to reassess for demographic information as part of

the process evaluation. Key demographic factors that should be documented include age,

gender, education level, current position (credentials), years of experience in their field,

and trauma training (yes/no). Additional factors of interest include personal experience

with trauma and military status.

Procedure and Design

The SupportNet staff report and process evaluation questionnaire was emailed to

the individual SupportNet staff members in December, 2012. The questionnaire may be

sent out a second time if the response rate is low. A second process evaluation of the

SupportNet staff is planned.

A delayed treatment paradigm will be used to deliver the SupportNet intervention to

three experimental groups of participants. In this way, the initial control group of

participants becomes the experimental group in the second trial. For each trial of the

intervention, the participants in the experimental group will receive the online

comprehensive questionnaire at specified time periods. The timing of data collection is

proposed to occur at three time periods for each experimental group. The first will occur

prior to starting the intervention. The second will be delivered to participants at the

termination of the intervention, and this will be considered part of the outcome evaluation.

Lastly, the participants will be given the questionnaire at two-month follow-up after

intervention completion.

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Outcome evaluation

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Outcome evaluation involves use of statistical methods to determine treatment

effectiveness on the target group. Quantitative outcome measures taken after the

intervention will allow researchers to assess the extent to which the stakeholders change

over time, presumably as a result of the intervention. In the SupportNet outcome

evaluation, it is important to consider the design of the study, including a control group for

comparison, random assignment, pre and post-tests, and adequate sample size. Attrition is

a common problem with online interventions, so it is crucial to anticipate attrition when

determining sample size and to maintain frequent contact with participants to keep them

engaged (Chiu & Eysenback, 2010). Outcome measures assess whether target goals have

been achieved. Measures of STS and job burnout are discussed in the SupportNet proposal.

Additionally, positive outcome measures are included, such as work engagement and

coping self-efficacy.

Effectiveness

In assessing effectiveness, researchers should report routine outcome

measurements, participants' adherence to the intervention, and information about the

generalizability of intervention's effectiveness in a real world context (Proudfoot et al.,

2011). Indices of an intervention's effectiveness include improvements in users' symptoms,

behavior, functioning and quality of life (Proudfoot). As outlined in the proposal, the

participants will be measured on job burnout, STS, work engagement, coping self-efficacy,

perceived stress, and perceived social support. In addition to these quantitative measures of

effectiveness, qualitative methods may be necessary to enrich the information provided by

the quantitative analyses. Proudfoot et al. urge researchers to recognize additional

complexities including participant preferences, selection biases, differential dropout rates,

and the appropriate use of quantitative and qualitative methods.

Satisfaction

Participants' satisfaction with various components and with the intervention as a whole will be assessed via the online questionnaire described in the method section. This questionnaire will be delivered after completion of the intervention as part of the outcome evaluation. In addition to Likert-type questions assessing satisfaction with the program, there will also be open-ended questions and space provided for participants to provide additional feedback. This qualitative information will supplement the satisfaction ratings and provide more detailed feedback.

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Appendix A

Satisfaction Questionnaire

A. Looking back on your experience using the SupportNet system and coaching sessions, please indicate the extent to which you agree or disagree with the following statements:

Strongly Disagree   Disagree   Mildly Disagree   Mildly Agree   Agree   Strongly Agree   N/A

1. Overall, I felt satisfied with the SupportNet system.
2. The SupportNet system met my expectations.
3. I found SupportNet easy to use.
4. Overall, I found the site engaging.
5. SupportNet helped me to build or improve my personal relationships.
6. SupportNet helped me to build or improve my professional relationships.
7. SupportNet required too much of my time.*
8. Using SupportNet improved my confidence in my ability to cope with work stress.
9. I felt the coach understood me.
10. I felt the coach and I had a respectful relationship.
11. The coach and I worked on what I wanted to work on.
12. I felt the coach and I had a good connection.
13. Overall, the coaching was helpful.

Note: *Reverse scored item

B. Please answer the following open-ended questions with as much detail as possible:

1. In what ways did you find the SupportNet website useful? How could the website be improved?

2. In what ways did you find the coaching helpful? How could the coaching be improved?